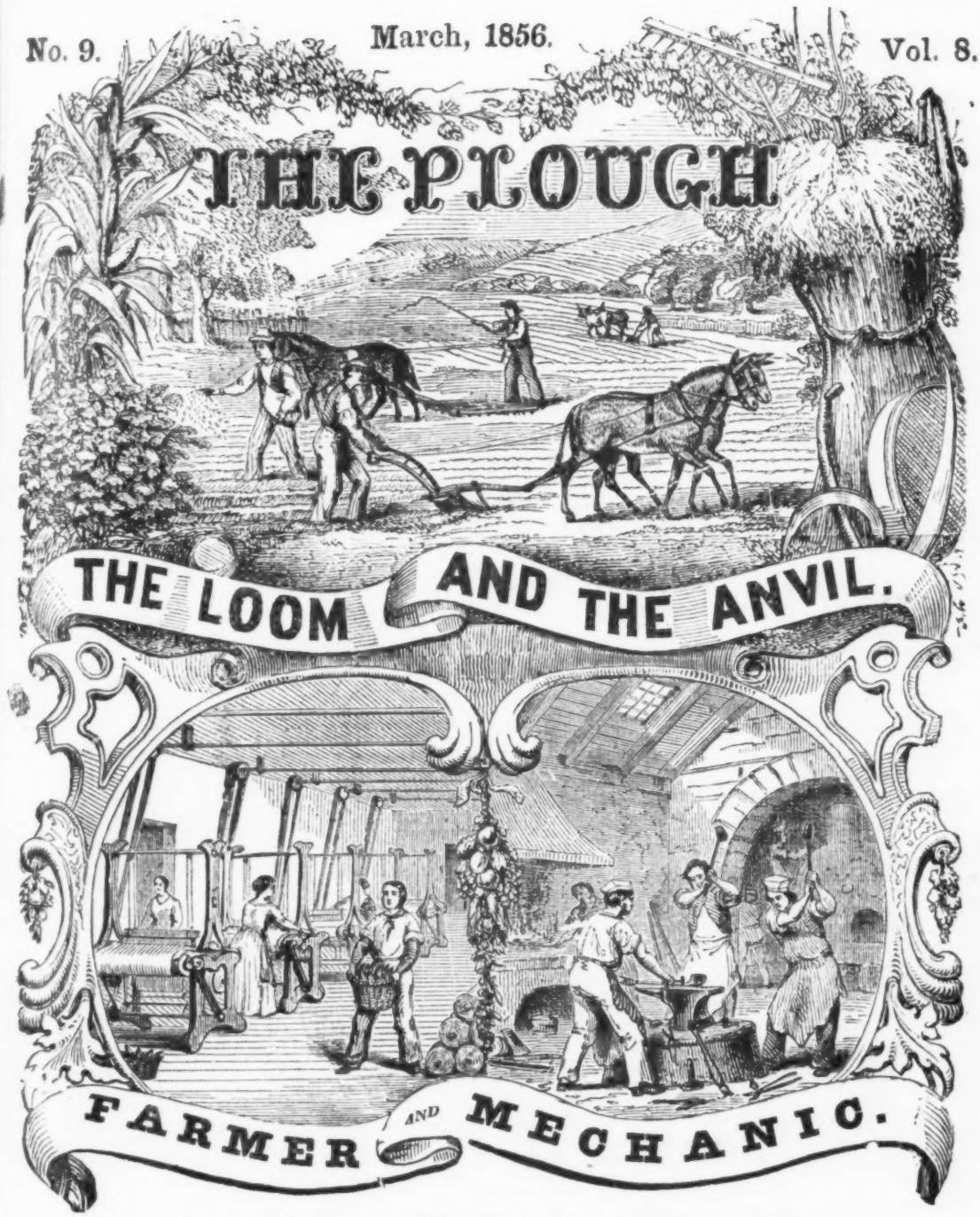
No. 9. March, 1856. Vol. 8.



CONTENTS OF NO. 9.—VOL. VIII.

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PUBLISHED AT NO. 9 SPRUCE ST., NEW-YORK.

The Plough, the Loom, and the Anvil,

Is devoted to Scientific and Practical Agriculture, Manufactures, Mechanics, with Designs of Farm Buildings, Cottages, &c.; the best Cultivation of Fruits and Plants; the proper care of Cattle, Horses, Sheep, Hogs, Poultry, Bees, &c. It will point out, also, the true policy to be pursued for the encouragement of American industry, without which there can be no secure foundation for American Independence. It is issued MONTHLY, each number containing SIXTY-FOUR pages of reading matter, with frequent Illustrations, Engravings, &c., at the following

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March, 3 mos.

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The Plough, the Loom, and the Anvil.

VOL. VIII. MARCH, 1856. No. 9.

UNITED STATES AGRICULTURAL SOCIETY.

FOURTH ANNUAL MEETING.

THE Society met at Washington in the Smithsonian Building at 10 o'clock on Wednesday morning, January 9th.

Hon. Marshal P. Wilder, of Massachusetts, the President, called the Society to order. Delegates presented their credentials from the Agricultural Societies of eighteen States and Territories. Between sixty and seventy delegates were present.

President Wilder then rose and delivered his annual address. He closed with an announcement of his intention to retire from the post of President.

B. B. French, Esq., Treasurer of the Society, made the following report:

Immediately on his election he had an interview with Wm. Selden, Esq., the former Treasurer, who handed over to him the books and papers of his office, and informed him that the only money in his hands was on deposit in the Bank of Selden, Withers & Co., then in the hands of Trustees, and consequently the funds were unavailable.

The sum on deposit is $2,149 42.

To secure to the Society the ultimate payment of the sum on deposit, Mr. Selden has placed in my hands, under the direction of the Society, three one-thousand dollar bonds of the "Allisonia Manufacturing Company," in Tennessee, as collateral security, for which I gave him a receipt, approved by the Executive Committee of the Society.

The Trustees of Selden, Withers & Co., have as yet made no dividend, although it is understood that they now have a considerable sum of money on hand subject to dividend, which but for a claim set up by the United States to be preferred over all other creditors, would be divided.

The only money that has come into my hands, except that received in Boston, amounts to $37 90.

During the five days of the Boston Exhibition I received as Treasurer $31,808 58. The amount paid out in premiums was $10,205 98. The other expenses amounted to $8,773 76; which, with the premiums, amounted to $19,069 74. Necessity compelling me to return to Washington, I passed over to the President all the money in my hands, who paid the remaining bills, amounting to $16,280 78, for which he has returned me vouchers.

In addition to the moneys paid over to the President by me, he received on account of sales, etc., $5,363 94, which, added to the sum received by me, makes an aggregate of $37,172 54; and, after deducting all the money

paid out, leaves a balance of $1,822 12, which the President has paid over to me.

The entire available means now in my hands are $1,868 02.

I submit herewith my accounts current and all the vouchers.

I am informed by the President that there is still against the Society some bills for printing, and perhaps a few others, and there are premiums to the amount of $200 still unpaid, which, by the terms of the printed conditions, are forfeited, and probably will never be demanded.

The principal portion of the money in the Treasurer's hands is now on deposit in the "New-England Bank," Boston.

On motion, B. Perley Poore, of Massachusetts, D. Jay Browne, of the Patent-Office, and C. H. McCormick, of Illinois, were appointed Auditing Committee of the Treasurer's accounts..

On motion of Anthony Kimball, Esq., the President appointed a Nominating Committee, consisting of one from each State and Territory represented.

The President read a letter from Mayor Conrad, of Philadelphia, inclosing resolutions of the City Council, and requesting that the next annual exhibition of the Society be held in that city.

The proposition was accepted, and referred to the Executive Committee for the proper arrangement.

Discussion then ensued upon the expediency of holding exhibitions in those cities which would contribute the most to the treasury of the Society.

The President read a series of resolutions from the Illinois Legislature, asking appropriations from Congress for agricultural purposes.

After discussion these resolutions were referred to a select committee, consisting of Professor Henry, J. B. D. DeBow, Esq., and A. H. Byington, with authority to lay the subject before Congress.

D. Jay Browne, Esq., of the Patent-Office, then read the following paper:

ON THE IMPROVEMENT OF THE HORSE IN THE UNITED STATES.

The *Atlas Statique de la Production des Chevaux* gives some interesting details respecting the method of the "Administration" for obtaining the most correct information with regard to the number and quality of the various races of horses to be found in France. The Society or Administration for breeding this animal has divided that country into twenty-seven districts, which comprise two breeding establishments, twenty-four depots for stallions, and one for army horses. In order to arrive at an exact estimate of the equine population, persons especially chosen for the purpose were employed in 1850 to visit every stable, village, and canton in each arrondisement and department. The result of this census of horses demonstrates with sufficient clearness the progress and utility of these establishments. The advantages they afford in improving the breeds generally, as well as in giving increased value to the animals in a commercial point of view, are already appreciated by the French, and naturally lead to the suggestion of adopting a similar system in the United States for the improvement of the horses in our army, as well as for other purposes. If a depot for stallions of approved breeds were established by Government in each State and Territory in the Union for public use, free of charge, incalculable benefit would doubtless accrue to the country, and in less than ten years the improvement and increased value of the horse would be immense.

The question arises, how shall this change be brought about? Where

are the horses to be obtained? At whose expense? And by whom shall it be accomplished? It has been suggested that it would very properly come under the direction of the War Department, with the view of providing for the future wants of the army, and that an adequate appropriation should be made by Congress for that purpose. With equal propriety it has been asserted that it could be done by the States themselves through their Agricultural Societies, Boards of Agriculture, etc. The breeding horses of one or both sexes could be imported in sufficient numbers and varieties from various parts of Europe, Northern Africa, and South America. In the selection of breeds, as to their adaptation to the economy, uses, and climate of the different sections of our country, it would require much investigation, practical knowledge, science, and discrimination. Whether such an enterprise can ever be brought about remains only for the public to decide.

The work referred to in the commencement was laid on the Secretary's table for inspection.

On motion the paper just read was ordered to be printed in the Secretary's transactions.

Capt. Van Vleit, United States Army, read a paper upon the Rocky Mountain Sheep.

Prof. Baird, of the Smithson Institution, exhibited specimens of the horns, hoofs, head, and hair of the Rocky Mountain sheep, and urged several reasons why the animal should be domesticated, stating that an appropriation of from $100 to $200 would induce some hunters about Fort Laramie to persevere in their efforts until several pairs of these animals could be obtained, which would be sufficient to warrant an attempt at their domestication.

Mr. D. Jay Browne spoke of the attempt to domesticate the buffalo and cross the breed with that of the tame cattle, and went into some details showing the doubtful success of the attempt. He moved to refer the whole subject to the Executive Committee.

Mr. B. P. Poore gave a description of an attempt his father made to domesticate imported sheep of a fine breed among the hills of Georgia. The result of the experiment was that most of the sheep died, and the shepherds who had been brought over to take care of them insisted that the reason of their death was that the country was too wild for them. Mr. Poore thought that if this country was too wild for the European sheep, it must be the very place in which the experiment of domesticating the mountain sheep would meet with the greatest success.

The paper of Capt. Van Vleit was ordered to be published, and Prof. Baird was requested to furnish a copy of his remarks on the subject for publication.

The project of the domestication of the Rocky Mountain sheep was referred to the Executive Committee.

D. Jay Browne, Esq., gave an account of a plan submitted to the Commissioner of Patents by a gentleman from Ohio to import for distribution large quantities of a superior kind Mediterranean wheat. This proposition could not be entertained, as the appropriation of Congress for that purpose had been exhausted. Mr. Browne therefore laid it before the Society, with the hope that some plan might be devised by which wheat might be imported by the Society and distributed all over the country in small quantities as an experiment, a report of the results to be forwarded to the Society.

A. Kimmel, Esq., thought that no subject was more important at this time

than improvement in the quality of seed wheat and the selection of that kind that would yield the largest supply. The following resolutions were offered:

Whereas it has been represented that the wheat seed, procured from the shores of the Mediterranean and Black Seas, when cultivated in various sections of the United States, matures several days earlier than the ordinary varieties in use, and that said wheat not only proves to be more prolific in its yield, for the first few years at least, but possesses other valuable properties: Therefore, be it

Resolved, That the Executive Committee be empowered to import such quantities and varieties of said wheat as they may deem expedient, to be placed in proper hands for experiment, at least one bushel in a place, in every State and Territory, making it obligatory on the part of each experimentor to duly report to this Society the result.

Resolved, That said Committee be empowered, if thought expedient, to issue proposals for the importation of a cargo of wheat seed for the use of agricultural societies or individuals, on such terms or conditions as they may see fit to prescribe.

Mr. Kimmel enumerated the different kinds of foreign wheat of fine quality, and the ports at which they could be obtained with the greatest care and of the best quality. For a factor to travel to all these places would involve too much expense; and yet the different kinds of wheat could not be obtained at any other place. He therefore suggested that efforts be made to obtain these different kinds through the American Consuls residing in the countries in which the several kinds grow. In the course of his remarks he described an attempt he had made to domesticate a kind from a part of Europe ten degrees further north than the place in America where it was planted. The result was that in the course of a few years it had the same appearance as native wheat. Mr. Browne thought wheat should be brought from a warmer climate than that of the place where it was planted.

After some further discussion on this point by Mr. Kimmel, the whole subject was referred to the Executive Committee, and Mr. Browne was requested to reduce to writing the plan he had suggested for the use of the committee. The same request was made of Mr. Kimmel.

Prof. Jos. Henry laid upon the Secretary's table a very large crystal of rock salt, which had been sent to him from Salt Lake City. Its chief value was the power of transmitting all kinds of light like a prism. The specimen was received, and the Professor requested to reduce his remarks on the subject to writing, and hand them to the Secretary for publication.

The President then read a letter from Salt Lake City upon the capabilities of the surrounding soil, which letter was also ordered to be printed.

Reaper Case.—In the great reaper trial of McCormick against Manny, in the U. S. Circuit Court at Washington, Judge McLean has delivered the opinion of the Court in favor of Manny, and refused the injunction sought by McCormick for infringement of his patent.

NEW-HAMPSHIRE AGRICULTURAL SOCIETY—A GOOD MOVEMENT.

THE State Society of New-Hampshire has commenced a capital plan of asking important questions of a selected correspondent in every town. In this, though they but follow the usage of the Patent-Office, they modify the inquiry to suit the latitude. The following is a list of the interrogatories:

I.

1. Are farmers in your town improving their farms, and their own social condition?
2. If so, in what respects, and by what agencies?
3. If not, what prevents?

II.

1. What amount of woodland is there in the town?
2. In what ratio is it diminishing?

III.

1. How much swamp land, in town, has been reclaimed within five years?
2. At what cost per acre?

IV.

1. What is the condition of pasture land?
2. What measures are adopted for the improvement of such land?

V.

1. What price, per month, is paid for farm labor through the year?
2. What during the summer and autumn—say for six months?
3. What per day, in haying and harvesting?
4. What per week, for domestic help?
5. Is it easy to obtain such help?
6. If not, why?
7. Is American or foreign help employed?
8. What proportion of each?

VI.

1. Is much attention given to the breeding of stock?
2. Who are some of the best stock-breeders in town?
3. Give such hints as may occur, in relation to the breeding of stock of all kinds?

VII.

1. What breeds of neat cattle are most common?
2. What are best for labor?
3. What for beef?
4. What for milk?
5. What breed combines the most desirable qualities, and is most profitable?
6. What crosses are most preferred?

VIII.

1. What breeds of sheep are kept?
2. What is their value per head?
3. How much wool do they yield annually?
4. What breed is most valuable?

IX.

1. What breeds of swine are most common?
2. Which is preferred, and why?
3. Can pork be raised with profit?

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

EDUCATION.

"FOREIGN commerce requires capital, and wealth gives power. Theorize as we will about the matter; it is so, and will be so. When wealth is controlled by a few, the few control the many. Wealth secures, or may secure, education; and knowledge is power. Nor is this all; "*for being educated they are naturally the associates of the members of the learned professions, and there is a common sympathy between them growing out of this state of things. Here is reason enough for the influence exerted in many communities by these classes.*"—*P., L. & A.* p. 322.

"The mission" of an agricultural paper is essentially to aid in educating the masses; not education as is too commonly comprehended in that term, for the mass deem being taught the elementaries, to be education. Could the writer believe "the mission" of an agricultural paper to be the mere increase of a crop, how to fatten a hog or a beef, to increase quantity or quality of wool—to make money; or comparisons between members of a family who should have a common hope, a common good at heart, he would at once cease the labors of a quarter of a century, break his pen, demolish his inkstand, and turn over this missionary work to Wall street and the Shylocks whose whole study in life is cent per cent.

The merchant who owns a large capital, educated in head, and heart, and hands, who had a pious and devoted mother to pour into his infant heart "love to God and love to man" is bound to wield an influence little short of a king, and thus would show forth that "commerce is king." But unfortunately for the cause of true human progress, acquisition of property is regarded as the beaux ideal; the economy, the close trading, and the shaving of the millionaire is the picture set before young men; the education, if any, the comprehensive mind, far-seeing eye of these men are taken into count; the thousands who fell by the wayside whilst struggling to mount up to the height of Crœsus are not seen, but those only who have amassed are pointed to, and the young disciple of Mammon is bid God-speed.

If mothers were thoroughly educated, if parents and guardians would point to youth the bright examples who have secured the prize, we would soon have better days. Mothers having the care of the infant heart when it can be molded to high and holy aspirations should be eminently fitted to their task; by a thorough drilling, even as thorough as if they were to fill the sphere that God has alloted to man, because they prepare the material for the work. Parents and guardians who manage youth would do their duty better to put an example before their young charges—our future men—whom by following they could not err. For instance, Mr. ———, who at his home is a kind father, husband, friend, neighbor, one who spends his evenings with his family or in study; one who is ready to aid the needy, has a heart open to the wants of our race, one who is faithful in the discharge of all duties whether to God, his country, or himself. Such an example may not all suit of his accumulating vast property, but it will be more certain.

If every business man would resolve, on setting out in life, to do his whole duty, we would have ninety-nine out of every hundred *well doing in the world*, instead of one to accumulate a Girard estate, and ninety-nine to fall by the wayside. The great point is, lay a foundation broad, strong and

deep, by educating woman. Leave all the mere show and glitter to such of our race, whether those who have beards or not, who prefer such to the development of our race. With such a foundation, America may build a reputation that will be a lever to move the world. Labor as you will to educate man, and make of woman a mere machine to stitch silk and lace upon, a mere automaton to be wound up at the pleasure of a man, and to rattle away on wood, metal and ivory some times, and you can never place man in his proper position. The female sex educated for companions, associates, would so soften the harshness of man's nature that you would soon see more influence from education than for these hundred years past altogether. With respect, your fellow-citizen from the

SOUTHWARD.

THE SPIRIT OF SPECULATION—HOW TO CHECK IT.

THE more we look into the subject, the more enormous appears to us the wild and reckless spirit of speculation. It seems to pervade every department of trade. A recent exchange from the South asserts that speculators are controlling the prices of sugar in their first market. They buy up large quantities and withdraw most of it from the market, and then raise a hue and cry of scarcity, accomplishing their object throughout, as other gamblers do, by falsehood and fraud.

Another mode in which those men operate is set forth in the following paragraph, which occurs in a memorial of the sugar dealers of New-Orleans, under the date of Nov., 1855:

"Our market," say they, "is at all times liable to be influenced by combinations, got up in other cities as well as in New-Orleans. Mr. Champpnier has informed us, in his circular of the 16th inst., that in New-York, on the 3d inst., Refiners 'were scarcely in the market at all; some of them having lately sold refined sugars at the cost price of raw, and in same instances less.'

"Refiners do not make such sales without an object. Being made at that particular juncture, it is not unfair to suppose they were made for the purpose of influencing the market, to depress the price of raw sugar, of which they now have to purchase so largely. Had the crop been a large one they would no doubt have succeeded. But no system of misrepresentation can blind people to the diminution of the present crop. Speculators were prompt in taking all the sugars offered by those refiners, and prices went up again."

We are perfectly aware of the great difficulty of defending the public against such depredators. The enactment of special statutes to meet such necessities, is both hazardous and unpopular. But we are not quite sure that common law does not give us means of defense well worth attention. Different modes of operation have received appropriate names, while the end and aim may be the same. Thus:

Under the common law, *Forestalling the market* is an indictable offense. It consists "in buying or in contracting for any merchandise or victual coming in the way to market; or dissuading persons from bringing their goods or provisions there; or persuading them to enhance the price, when there; any of which practices make the market dearer to the fair trader."

Another form of a similar offence is *Regrating*, which is defined to be "the

buying of corn or other dead victual, in any market, and selling again in the same market, or within four miles of the place." The gist of this offense consists in an intent to speculate on the price of food. Nor does it require any actual corrupt motive beyond this increase of price, by the mere purchase for making money and re-selling in the same market; indeed the reason assigned by Blackstone, why such purchase and re-sale is unlawful is because "every successive seller must have a successive profit."

But a third form of carrying on trade unlawfully describes more exactly that very form which is so extensively practised in this country at the present time. It is called *Engrossing*. This is described to be "the getting into one's possession or buying up large quantities of corn, or other dead victual with intent to sell them again." "This," says Blackstone, "must of course be injurious to the public, by putting it in the power of one or two rich men to raise the price of provisions at their own discretion."

This offense differs from monoplies, a fourth form of offense, inasmuch as monopolies extend to all branches of trade.

The penalty for violating the laws in these several modes, was by discretionary fine and imprisonment as a misdemeanor.

Nor is it marvellous that our ancestors should enact such laws. There is work enough for all without being obliged to filch from the pockets of the poor, as does every such speculator. Such middle men as enter into this business in the manner described, ought to be regarded as dishonest, fradulent, disreputable, like any other gamblers. They are gamblers. They do nothing to increase the value of the merchandise. They merely get possession, and oblige others, who might buy as well as they, and without their help, to pay them an exorbitant commission for doing what benefits no one. Why can not our butchers buy of the drovers without the interference of middle men? Why cannot our grocers buy flour without supporting expensive establishments for the benefit of those who buy only to make a great profit by selling to the grocer? Why is a class of men tolerated who make a great hue and cry through the country of "high prices and short supplies," merely to bring in a surplus and buy it up at a low rate, because there is a more liberal supply, and then keep out of the market those same supplies, except as they can sell them at the same excessive prices, while the poor go hungry?

We know not the suffering that results from this single operation, and the community are fleeced out of thousands and tens of thousands of dollars to feed luxuriously these lazy middle men, who will not earn an honest living. *Nine-tenths* of all the middle men of this city might be dispensed with, and the community suffer nothing, but save much.

Pomeroy, Ohio.—Within the past year, over 10,000,000 bushels of coal, 1,000,000 bushels of salt, and manufactured iron to the value of $150,000, have been shipped from Pomeroy and towns adjacent, to points below. The value of these mineral products is over $1,000,000, to say nothing of the agricultural productions.—*Meigs Co. Telegraph.*

THE CITY OF ST. PAUL.

A CORRESPONDENT of the Chicago *Democrat* furnishes that paper an interesting account of this thriving city.

The city of St. Paul (not St. Paul's) is built on a series of tables or benches which run parallel with the river, the one rising above the other to a height of from forty to sixty feet, and extending probably two miles along the river, running back about the same distance. In early times the place went under the name of "Pig's Eye;" but a missionary came here and built a small church dedicated to St. Paul, and from that the city has been named. This "church," a little log house, is still standing, and was pointed out to me yesterday by Judge Tullis of this city. There it stands, a rude, rough log house, where first the red man of these regions heard preached the tidings of salvation. This is called the "nucleus" of St. Paul, and I observed that not a few chunks had been cut out of the logs by relic hunters who have visited this region.

The town plan of St. Paul was laid out in 1847, up to which time it could only claim to be a wilderness. In 1850 the population amounted to 1035, since which time it has rapidly increased, till now it numbers upwards of 7000. The business, however, transacted at St. Paul, is far greater in proportion than its population would justify. Situated as at present it virtually is, at the head of navigation, St. Paul is not only the Territorial capital, but the commercial center of Minnesota Territory. Everything for the back or upper country must of necessity pass through it, and that of itself gives it an advantage over any other city or town site in the Territory. True, there may and doubtless will be other large cities in Minnesota, but St. Paul has the lead at present, and there is no reason why it should not keep it.

There are several fair looking buildings in St. Paul, considering its age. The capitol is an imposing structure, built of brick manufactured here. There is also a well built hotel—the Winlow House—which has a commanding appearance. The majority of the houses, however, are built of wood.

There are three grist mills in operation, capable of turning out 1,500 bushels a day. There are also six or seven saw mills, all of which at present are running night and day.

The Forwarding and Commission business is very extensive, and likely to continue increasing. At present there are about a dozen houses devoted almost exclusively to it, who jointly do a yearly business amounting probably to half a million of dollars.

St. Paul has seven churches—First and Second Presbyterian, Methodist, Episcopal, Catholic, German, Methodist and Scandinavian—all of whom have stated pastors, with good congregations. The erections are not by any means extravagant or graceful in their appearance, but for a young city they are tolerably fair. The Catholics intend to commence a splendid Cathedral next year, one of their clergymen being at the present time in Europe collecting money for that purpose.

In educational matters, St. Paul is pretty fairly advanced. They have a charter for a college, to be called "The University of St. Paul," the preparatory department of which will commence soon. Besides this, there is the Baldwin school, founded by a gentleman of that name in Philadelphia. It was incorporated and commenced operations early in June, 1853. The

Female Department alone has 100 pupils. There are also three district schools, all of which I believe are well patronized.

Real estate is not so high proportionately as it is farther up the river. Property in the best business street may be had at from $90 to $125 per foot, and good residence lots may be had at from $500 to $1000, and before the boundary of the city limits is approached, they may be got at $150 or thereabouts. Within the last month more than $200,000 worth of property has changed hands. There are some nice little bargains made here occasionally by real estate operators.

St. Paul, as your readers are probably aware, is virtually at the head of navigation on the Mississippi. When the river is properly cleared of rocks above St. Paul, vessels will be able in high water to reach St. Anthony; but at all times navigation will be such a matter of uncertainty, that the latter place must, in my opinion, content itself to be the second or third city in the Territory. Whenever railroads get started here, then some other place may possibly rise up and complete with St. Paul; but even that is not likely.

The people of St. Paul are a reading people, if we were to judge from the number of newspapers published here. There are in this city four daily and five weekly papers; one having just been started in the German language.

WHAT RAILROADS ARE DOING FOR THE WEST.—The official returns of the new census of Illinois have just been received. The entire population is over 1,300,000, which is a gain of about 50 per cent. upon the census of 1850. By comparing the increase through the several decades and semi-decades since the census has been taken, it will be seen that the gain has been much larger during the last five years than any former period:

From	1810 to 1820	the increase was	42,923
"	1820 to 1830	" "	102,234
"	1830 to 1835	" "	114,982
"	1835 to 1840	" "	204,756
"	1840 to 1845	" "	185,942
"	1845 to 1850	" "	189,345
"	1850 to 1855	" "	448,781

The railroad system has been developed in Illinois within the last five years, and one of the fruits, we see, has been to double the population. Add to this the improved society, the multiplied educational and moral influences, such as the newspapers, cheap books, etc., which follow population, and take advantage of all cheap methods of communication, and then one may begin to appreciate the advantages of the modern railway system as an engine of civilization.—*Exchange.*

USE OF RAILROADS.—The Beloit *Journal* says that during the past week, red and white winter wheat sold in that village for $1 87 and $1 88. It adds: "We have conversed with men who say in Beloit in years gone by, *a bushel of wheat exchanged for a pound of saleratus!* Where now are the croakers who say that 'railroads do not benefit the farmer?'"

INDUSTRIAL STATISTICS.

ESSEX COUNTY, MASSACHUSETTS.—This is the most densely populated county in the State, except Suffolk, and this results from the variety of their pursuits. The Newburyport *Herald* publishes the following statements in reference to certain forms of industry.

THE BOOT AND SHOE BUSINESS.—The following table shows the state of this interest in the several towns of this county:

Towns.	No. of males employed.	No. of females employed.	No. of pairs manufactured.	Value of manufactures.
Amesbury,	54	40	52,820	29,136
Andover,	76	34	80,736	55,787
Beverly,	511	300	288,600	171,000
Boxford,	50	47	61,550	52,550
Bradford,	12	11	20,075	1,000
Danvers,	1300	1500	1,330,000	1,000,000
Essex,	15	7	4,850	7,470
Georgetown,	356	239	339,540	336,320
Gloucester,	89	110	24,100	21,375
Groveland,	261	193	161,414	152,039
Hamilton,	93	56	23,000	8,200
Haverhill,	4087	2257	4,332,015	2,782,930
Ipswich,	78	60	42,000	69,000
Lawrence,	31	30	24,183	24,925
Lynn,	4545	11,021	9,275,593	4,165,529
Lynnfield,	41	39	33,000	31,200
Manchester,	1	2	2,500	1,200
Marblehead,	1080	1485	2,835,724	1,020,373
Methuen,	280	210	304,500	300,500
Middleton,	165	140	180,000	117,000
Nahant,				
Newbury,				
Newburyport,	361	268	428,400	398,600
N. Andover,	60	25	50,000	36,000
Rockport,	17		14,900	8,000
Rowley,	209	114	164,800	195,600
Salem,	128	148	139,250	96,000
Salisbury,	33	48	18,164	15,019
Saugus,	152	120	134,000	96,000
S. Danvers,	562	481	747,600	597,259
Swampscott,	76	141	20,600	49,300
Topsfield,	105	121	98,350	90,260
Wenham,	46	20	29,200	20,000
W. Newbury,	231	138	275,200	231,138
	15,105	19,395	21,540,664	$12,180,810

It will be seen from the above that the census returns more than 35,000 workers upon boots and shoes, manufacturing over 21,000,000 pairs, at a value exceeding $12,000 annually; and as large as that seems, it is not up to the facts. The census was taken in summer, when many of the shoemakers were fishing or farming who were enumerated as fishermen and farmers. The city of Newburyport would have given a hundred more in January than June; and Marblehead would have made a greater difference, and so would Beverly, of the fishing towns, to say nothing of the agricultural.

Two of the towns, it will be seen, have not been enumerated; one of them is Newbury, where probably there are two hundred males and females

because they did not manufacture for themselves in the town. The valuation, too, we believe is much below the mark; everybody knows that valuation has to do with taxation, and they never state above but often below the actual worth.

CARRIAGE MANUFACTURING IN WEST AMESBURY.—There are twenty establishments in West Amesbury for the manufacturing of carriages, that have an invested capital of a quarter of a million dollars and give constant employment to 280 hands. That business has within a few years built up one of the most thrifty villages there to be found in the country; and the turning out of $300,000 value in chaises, carriages, etc., places it first in that manufacture.

Nearly all the tanning and currying is done in Salem and Danvers, the comb-making in West Newbury, the shipbuilding in Newburyport, the construction of small vessels at Essex, the cod-fishery in Beverly and Marblehead, the African trade in Salem, the freighting ships in Newburyport, and mackerel catching from Gloucester. People of the same business, modes of life and habits of thought, congregate together.

SHIPBUILDING.—Newburyport employs a large number of men in this form of trade. The statistics given are as follows:

Men employed, 270; daily wages average $1 50; about 35 men are employed in the joiner work, who receive $1 75 per day; 33 caulkers get $1 50 per day; 33 smiths average $1 50; ship's painters, about 20 hands, get $1 33 per day.

DIFFERENT KINDS OF FOWLS.

THE following statements are from extensive raisers of poultry, and are worthy of the consideration of all interested in the subject:

The *Dorking* fowl, which some still attempt to bring forward as the best, has been found to be tender, and unfit for a general barn-yard fowl. The *Polands*, and *Black Spanish* are the same—good layers, but unfit for the table, when compared with some other breeds, and their young so tender as to be very troublesome to raise them. The *Creoles* or *Bolton Greys* are excellent layers; but owing to their small size can never be anything but a *fancy* fowl. "*Cochin China*" fowls are a humbug. There is no such breed, and those that were said to have been imported from Cochin China came from the city of Shanghai in China. They are a *Shanghai* fowl, with smooth legs. There are but few Shanghai fowls now existing in this country in a pure state; but those that have short legs, plump bodies, short tails, and weigh, hens, 8 lbs., and cocks 10 lbs., are a valuable fowl. Cinnamon colored hens, and red cocks are marks of genuine stock. There are some beautiful black Shanghais that are quite as valuable as those of a cinnamon color. The white Shanghais are a good fowl, but not as hardy as those of other colors. The *Chittagong* fowl is a great, unsightly bird; cocks of a mixed hue of black and white, hens grey, mottled, brown, etc. Indeed, it is difficult to find two fowls of the same color of this breed, and they have been crossed so extensively with the Brahma and other fowls, that the original stock is mostly merged in some other breed. This is the reason why so many ill-shaped, long-legged "*Brahma*" fowls are in the market, which in

fact are generally one-half, or three-fourths Chittagongs. The pure *Brahma* fowl, we believe, has no superior in the world, in all that constitutes a hardy fowl, one of great size, yet not too large, with short legs, compact bodies, and great prolificness in eggs. This is our experience with them, after a trial of four years."—*Rural American.*

A correspondent of the Hartford (Conn.) *Courant* says:

"For several years past I have kept a few hens, and have, during the time, tried several varieties. I now have two varieties which are certainly superior to any other kind of which I have any personal knowledge; one is the Brahma Pootra—a large, handsome fowl—most excellent layers and easy to raise; and the other is a white China fowl, or white Shanghai, as some call them. This variety I value very highly, and do not believe, all things considered, that they can be surpassed, in everything that goes to make a handsome and profitable hen, by any other variety in America. I have had this kind in my possession for fourteen months, and they have laid every month during the time except when setting; and after hatching they would commence laying by the time the chickens were two or three weeks old. The flesh of these fowls is excellent, being much superior to the common Shanghais; their bodies are full and plump as a partridge.

"I have kept during the year ending Oct. 15th, 1855, from twelve to sixteen hens, of different varieties, from which I have had over 1700 eggs.

"I paid out during the year for food, $45. The eggs come to $43, leaving me for profit between 80 and 90 chickens, valued at from 25 to 75 cents each, which shows that there is some profit to be derived from the business, although kept shut up as mine have been.

"Feed.—Their food should be corn, or corn and oats, kept where they can have access to it all times; also fresh water daily. When cooped up they should have pulverized oyster shells and gravel, where they can obtain them when they require, and occasionally fresh meat; with the meat, bones and other scrapings from the table; and two or three times a week they should have raw vegetables, chopped fine, such as cabbage, onions, turnips, carrots, etc.; and in summer a daily supply of grass. It will be found beneficial to feed once a day with meal, wet up with warm water, especially in the winter season. It is useless to expect a large supply of eggs unless you feed well.

"Vermin.—The greatest nuisance to contend with, and which is the cause of more failures in the management of poultry than all other causes combined, are the vermin or hen lice that infest their roosts in warm weather. It is useless to expect profit or pleasure while these pests are allowed to increase. I have succeeded in keeping the roosts comparatively clear of them by once or twice a week smearing the roosts with a mixture of poor oil and spirits of turpentine. The nests should be cleared out quite often and kept clean, and a box of ashes or dry sand kept where the hens can roll in it. Use these means, and we can warrant comparative immunity from the vermin.

The Roup is often very fatal to poultry, more particularly where they are kept in large numbers, often 25 per cent. of the flock dying of this disease. It is very similar to malignant erysipelas, with congestion of the lungs in the human subject, the wind-pipe closing up, causing suffocation. The only effectual remedy we know of is, on the first appearance of the disease, to close all the doors and windows of the poultry house at night, when the fowls are on the roost, then burn within the building a few corn-cobs, the smoke from which will fill the building, causing a constant snuffing or sneez-

ing, which affords relief. Smoke from corn-cobs is recommended for chronic laryngitis in the human subject, and cases are given of persons being cured by being in the smoke watching its effects upon their poultry."

THE BEST CATTLE.

The following extracts are from the correspondents of the Report of the Patent-Office for 1854.

Mr. Lane, of Connecticut:—"I have considerable experience in raising both the imported and common breeds; and I think a given amount of food will produce more meat in the Durham than in the common animal, or any other."

Mr. Mondy, of Vermillion, Illinois:—"We have the Durhams in considerable numbers, and pure blood. In my opinion, a cross of three-quarters Durham and one-quarter ordinary blood makes the best stock. Our common stock is best for the Dairy."

Mr. Boone, of Lebanon, Iowa:—"Crosses of the Durham with the common cattle have proved advantageous for beef, milk and labor.

S. D. Martin, Pine Grove, Kentucky:—"The Short-horned cattle are the best for milk and beef of any I have ever had. I have owned several cows, each of which would give over thirty quarts of milk a day, having an average of ten per cent of cream. I always employ oxen on my farm, and have worked those of every breed we have among us. The Herefords are excellent workers and pull evenly. But they are harder to break in, and are apt to be more vicious than the Short-horned. I prefer the Short-horns for oxen for the following reasons:—they are gentle and docile, easily broken in and managed, strong and true in pulling, are not vicious among other stock, and when they have been worked five or six years are easily fitted for the butcher, who will pay a good price for them."

Mr. Fuller, of Winthrop, Maine:—"We have imported Durham, Hereford and Ayreshire, but grade Durhams have been the most used among us, and have given the best satisfaction for milk, flesh and labor."

Mr. Weston, of Bloomfield, Maine:—"The Herefords, Durhams and Ayreshire have been introduced, and their crosses upon our common stock have succeeded well. Hereford cows are the best milkers of the imported breeds; but our ordinary cows are as good milkers as any.

Mr. Potter, of Manchester, New-Hampshire:—"In the valley of the Merrimack pure Devons are more generally bred than any other blooded stock; but I am inclined to the opinion that they are becoming of less repute than formerly. In our hilly, mountainous region, their size forbids their making suitable oxen for work, and for being profitable for the shambles. So that aside from their capacity as milkers, which is a mooted point, their usefulness for labor, and their value for beef, the Devons must fall behind several other breeds."

Mr. Rouse, Paris Hill, New-York:—"Crosses between the Durham and our common stock are thought by many to make the best milkers; while others think a cross with the Devons fully equal, if not preferable. Cases are by no means rare in which cows of what is usually termed the 'native

breed' are found equally as good milkers as any among the various kinds of imported stock. This remark may not be equally true, however, in regard to their aptness to take on fat."

Mr. Collins, of Sodus, New-York:—We prefer the Devons to any other breed; they are hardy and easily kept. The oxen are quick, active and docile, and the cows are excellent milkers, averaging two pounds of butter a day, each, with good feed."

Mr. Franklin, of Cuba, Ohio:—"The first crosses of the Durhams with our common stock are considered best for beef."

Mr. Smoot, Boone Court-House, Va.:—"I am of opinion that the Durhams crossed with the 'scrub cattle' are far better for this mountainous region than the full-blooded."

Mr. Wharton, Egypt, Texas:—"A few Durhams bulls were brought into this vicinity from the Western States. But, from the abundance of food, they soon became so large and strong as to be dangerous to our breeds, and were consequently shot."

PROPAGATION OF FISH;

WITH A DESCRIPTION OF THE CURIOUS OCEAN FISH-POND OF LOGAN, ON THE WEST COAST OF SCOTLAND.

BY CAPTAIN RALSTON.

Mr. Editor:—It is noticeable of fish that, although very polific of themselves, they would seem to be very unprolific of subject-matter, generally, whether as regards your own columns, or those of any others, your compeers. And yet, in relation to rural economics, the cultivation, so to speak, of some kinds of piscatory products can be rendered of no unworthy or unprofitable consideration. The artificial raising of fish, in ponds and streams, has come to attract much attention in Europe, and it may be in some instances, also, in this country, though unknown to the writer. The highly utilitarian objects which the subject embraces, have received new and suggestive features of interest, from the discovery of ready and sure means for the propagation and improvement of the finny tribes, and their multiplication at, well nigh, any one's will and pleasure. This is by collecting, at the proper time and season, the spawn of any desired kind of fish—say of salmon, trout, etc.,—and then netting some males of the same species, from whom the fluid of the milt, or the seminal emission, is to be gently squeezed upon the collected spawn, which is thereupon to be deposited in a protected place,—tank, pond, or stream,—under circumstances favorable to the development of the ova, and until the fry shall have become fitted to be turned into the still or running waters, intended to be stocked, as the case may be.

In France extensive and successful experiments have been made; and to some extent likewise in England. It was in Scotland, however, some twenty years ago, or so, that the germ of this idea had a practical origin, arising out of the circumstance that the salmon were fast diminishing and disappearing from many of those rivers where once they had so valuably abounded. It had long been an uncertain and disputed question how and where this noble

fish was bred, and what was its appearance and character previous to its being known and distinguished as the Salmon, on its first return up the streams from the sea, under its piscatorial cognomen of (Scotticē) "grilse," (Hibernicē) "gillaroo," and (Anglicē) "a first year run fish." There was a small fish which swarmed in the salmon rivers of North Britain—the "Tweed," the "Tay," etc.,—called the "Par." It weighed from two or three, to six or seven ounces, and was a beautiful little species, resembling a trout, but having a single row of golden-red spots, evenly studded along each silvery side. As it was lively in the stream, and a delicious morsel on the table, it was angled for by man and boy at all points, and taken in vast numbers. The writer, when an urchin, placed at the grammar-school of an ancient town, situated on the banks of the beautiful Tweed, has caught in that river from ten to twelve dozen of Par with the fly-rod, day after day; and his twenty-nine school confreres were no less active in plying the murderous warfare. Nor he, nor they, nor any one divined that this little fish was assuredly the young salmon, and that every one which should have escaped to the sea would, in all likelihood, have returned again up stream, in a few months, a noble "grilse," of from four to nine lbs. of weight. It is remarkable how undeviatingly these fish return to those streams in which they have been spawned, and the manner in which they will stem currents and ascend falls of water to do so is extraordinary.

The forest or chase, lake or *mere* laws, of the olden times of England and Europe, were terribly and unjustly strained enactments against the rights of the many for the enjoyment of the few. Even the British game-laws of the present time retain objectional features. But the absence of *all* restrictive laws—no protection of those *ferae naturae* which are termed "game"—is a flagrant oversight and error, causing hurtful deprivation and loss to any and every community. In how many districts and regions, already, of this country, has not that magnificent quarry—the deer—disappeared from hill and forest, as has the winged and other smaller game from field and woodland, while trout of any worthy size are scant, or none, in so many streams?

As regards the Par, the poaching havoc, once wont with it, has been largely stayed. Random guesses and surmises of its being the fry of the salmon had long been rife enough, but unattended by assured conviction or knowledge of the fact, until the Duke of Athol caused some experiments to be made in the Tay, which resulted in conclusive evidence. After being taken with the net, numbers of Par were marked, and then again freed in the river; and in a few months afterwards many of the marked fish were caught, on their return up stream from the sea, grown to be "grilses," or young salmon. This experiment was tried on such a scale, and this for several seasons, as to present proofs beyond doubt or cavil by even the most skeptical. Following upon this was, first, the protection of the young fry from former unlimited destruction; and, next, the discovery and resort to artificial incubation, as a means to preserve the spawn itself from its numerous sources of waste and accident. Out of all this has gradually been developed the now eminently practical and successful artificial cultivation of fish, so to call it.

The description of one experiment, made in the Tay, at Perth, in Scotland, will best elucidate what has and can be accomplished in this way. Three hundred boxes were laid down, in twenty-five parallel rows, each box partly filled with clean gravel and pebbles. On the 23d Dec., 1853, 300,000 ova were deposited in these boxes. In June, 1854, the fry were admitted into the prepared pond, their average size being about one and a quarter inch in length. From their admission they were fed, daily, with boiled liver,

rubbed small by the hand. By the spring of 1855 they had increased in size to three or four inches. In May they had begun to put on the migratory dress, or appearance, and on the 19th of that month the sluice communicating with the river was opened, and every facility given the piscatory brood to depart. None, however, manifested any disposition to issue forth until the 24th, when the larger or more mature of the smelts, after holding themselves detached from the others for several days, went off in a body. A series of similar emigrations took place, until full half the fry had left the pond and descended the sluice into the Tay. It had long been a subject of controversy whether the fry of the salmon assumed the migratory dress in the second or third year of their existence, and this favorable opportunity to decide the question was not overlooked.

In order to test the matter in the most effective manner, it was determined to mark a portion of the smelts in such a way as that they might easily be distinguished when returning as grilse. A temporary tank was constructed at the junction of the sluice with the Tay, and as the shoals successively left the pond, about one in every hundred was marked by the abscission of the second dorsal fin. A greater number were marked on the 29th of May than on any other day, in all about 1200 or 1300. The result proved equally satisfactory and curious. Within two months of their liberation twenty-two of the young fish so marked were recaptured, on their returning migration up the river, and proved the fact of their becoming grilse in the second year, as well as their rapid growth during their short sojourn in salt water. Those first taken weighed five, to five and a half pounds, increasing progressively to seven or eight pounds; whilst one taken on the 31st of July weighed nine and a half pounds. The wound caused by the process of marking was found to be covered by the skin, and in some there was a coating of scales over the part. This experiment demonstrates the practicability of thus rearing salmon, of marketable value, within twenty months from the deposition of the ova or spawn.

An incidental description of another mode of rearing fish—sea fish—may not, perhaps, be an unacceptable anecdote. An old brother officer of the writer, Colonel McDouall, late in command of the second regiment of Life Guards, is possessed of an estate called "Logan," situated in the Rhinns of Galloway, Wigtonshire, Scotland. It is about half way between Portpatrick and the mull of Galloway, and extends about a mile and a half down to that point of the Atlantic sea-board. Here Colonel McDouall has formed a fish-pond, which is perhaps unique as an adjunct to a gentleman's residence, and some account of it may interest piscatorial readers, and lovers of natural history generally.

This pond was originally a small, rocky basin of the coast, with which the sea communicated by means of a natural tunnel; but as the bottom was very little below the medium sea level, it was nearly dry at low water. It occurred to Colonel McDouall that, by increasing the size and depth of this basin, he might, at all times and seasons of the year, have a constant supply of sea-fish; and he blasted and quarried the rocks, both at the bottom and sides, until he had formed a circular excavation of about fifty feet in diameter, and of depth to give about eight feet of water at low tides, so that fish in the pond should always have an ample allowance of their native element. At flood, the water rises six feet in the pond, or to about fourteen feet in depth, in all, affording a fresh supply with every tide. There is a high wall, built on the upper edge of the rock, around the pond, to prevent poaching in this unusual "game preserve;" and a grating is fixed at the

entrance from the tunnel, so as to bar the escape of the fish. Beneath high water mark the sea-weed clings to the rocks, giving them an aspect as picturesque as natural. A cottage, in which the female keeper and her son reside, adjoins the pond.

When the writer first visited this ocean-pond, the keeper unlocked a door, and he was advancing forward, when the appearance of a large eagle—the Osprey, or sea eagle—startled him, for its glaring eyes and outstretched pinions seemed actually to menace the visitant. But the startled arrest of step is only an involuntary tribute to the skill of the artist who has stuffed this air-cleaving fisher of the deep. The door opens on a small landing-place, at the top of a flight of steps, which lead to the water's edge, where there is a platform of rock, about two inches above the level of the water; and, below the ledge of which there is another ledge, some twelve inches or so under water. No sooner is any one's advance descried on the top of the stairs, than a general commotion ensues among the fish, and they rush towards the platform's edge, pushing and jostling in their eagerness to get to the place where they are usually fed, just as barn-door fowls do at the sight of the person who feeds them. A quantity of muscles, scalded for the purpose of getting them more easily from the shell, had been provided to feed the fish. On this kind of food the Cod, and other varieties kept in the pond, thrive amazingly; and after being a few weeks thus "stall-fed," so to term it, they greatly excel in flavor and juiciness their untamed brethren of the open sea. A muscle being held between the fingers, about two inches below the surface of the water, a cod of about ten pounds weight took it, having won the race by about a head from three or four more of its mates of similar dimensions, all of which rushed for the prize at the same time. It required some nerve to prevent oneself from jerking back the hand at the moment the cod, with widely-extended jaws, took the bait. Several attempts to get hold of one of the larger fish failed; but a capture of one of four or five pounds was made, which, after being raised out of the water, and leisurely inspected, was returned to his native element, at which he seemed not a little pleased. It was, again and again, unsuccessfully tried to get hold of one large fellow of twelve or thirteen pounds; but from his size and strength, he always got off; and though unable to throw *dust* in one's eyes, he revenged himself with such a whisk of his tail as sent the *salt water* flying. After taking a short run, he always returned to the ledge, nothing daunted by the several attempts to seize him. The keeper took one of the largest, about ten pounds weight, in her lap, and stroked and petted it, saying, "poor fellow, poor fellow," just as if it had been a child; and she opened its mouth and put in a muscle, which it swallowed with apparent *gusto*—at least a wriggle of the tail might be so interpreted—and she then put her prisoner back again. Several gradations of tameness was observable among the fish; some were quite tame, and came close up to the ledge; while another class kept parading from right to left, keeping about two or three yards off, but readily partaking of some food thrown to them; and a third class kept aloof altogether. Others kept secluded from sight, in the nooks and corners at the bottom of the pond, and these were perhaps the "Johnny Newcombes" of the place.

It is a curious physiological fact—fishiological, if it better please—that fish which remain long in this pond always become blind; and this was ascribed to insufficient shelter from the heat and glare of the sun, owing to the shallowness of the water, when compared to the depths of their ocean haunts. In this state they are fed by hand, being unable to compete for

food with those whose sight is unimpaired. One large blind fellow called "Jack" was a great pet, and upon the keeper calling his name, he appeared to both hear and understand, for he came forward slowly, and when she held a muscle to his mouth, swallowed it.

At the time spoken of there were only three kinds of fish in the pond, viz., cod, flounder, and another small species; but salmon and other kinds are frequently preserved. The manner in which the stock is kept up is this: The son of the keeper goes out to sea in a boat having a tub, or well, and when he catches any fish that he thinks will do, he preserves them in the well, from whence he transfers them to the pond; where in due time—from a month to six weeks—they become tame. A curious scene occurred on one occasion when a mackerel was put in; there was a general chase after the unfortunate stranger, which only saved itself from being devoured by the larger and more ferocious of the denizens of the pond by running itself on a ledge of the rock.

JOHN C. RALSTON.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA.—We proceed to describe several individual species of the Papilio, (Butterfly,) of which the characteristics were given in our last number.

Papilio asterias, (of Cramer.) These insects are sometimes called Parsley Worms because they are fond of that plant, being often found on it, and also on the carrot, parsnip, celery, etc., in our gardens, and on those of the hemlock tribe of a wild growth. They appear in the Eastern States in the month of June. When first hatched they are only one-tenth of an inch in length, and are black, except a white band across their middle and a second on the tail. Their backs are covered with small projecting points. But at every successive moulting they change their appearance. The points, bands, and spots, (from which the points spring,) disappear, the skin becomes smooth, green, pale on the sides, and whitish beneath. They also have a pair of horns, (scent organs,) soft, orange colored, and divided from near its origin, like the letter Y. About the 20th of July they come to their full size—one and a half inches long, and are covered with alternate bands of black and yellow spots.

When they are full grown, they spin a little web, which they attach to the surface on which they rest, and entangle the hooks of their hindmost feet in it; and then, fastening themselves still further by a loop, into which they pass their heads, within twenty-four hours the caterpillar becomes a chrysalis, of a pale green or ash-gray color, with two short ear-like projections above the head, and slight prominence on its back. Remaining in this state from nine to fifteen days—(cold and wet weather prolonging the term,) the skin of the chrysalis bursts open, and a butterfly issues from it, of a black color, with a double row of yellow dots on the back. A band of yellow spots extends across the wings, and yellow spots also occur on its hind margin. The hind-wings are tailed. Seven blue spots occur behind the band across their wings, and near the hinder angle an eye-like spot of a yellow color. The female has fewer yellow spots than the male. The wings

of these butterflies expand from three to four inches. In the month of July they are seen in great numbers in flower gardens, especially on the Phlox, (sweet scented,) and lay their eggs in July and August on this and other plants, placing them singly on the leaves and stems. They are soon hatched, and the caterpillars come to full size in September or early in October, suspend themselves, as before described—remaining so during the winter, and are transformed in May or June of the following year.

The most effectual mode of destroying these caterpillars is by gathering and crushing them.

Vanessa antiopa, (Linnæus.) This butterfly has wings of a purplish brown above, with a broad buff-yellow margin, and a row of pale blue spots near their inner edge. It is torpid during the winter, and comes out very early in the spring, confining itself to warm and sheltered spots. The caterpillars of this species are found on the poplar, willow, elm, and other early-budding trees. They are black and rough, with small white dots and a row of red dots on the top of the back. On each segment except the first are six or seven black, stiff and branching spines. They are about one and three-quarter inches long. They have been erroneously supposed to be venomous. They are very numerous.

The chrysalis is of a dark brown color, with large, tawny spots on the back. The chrysalis becomes a butterfly after ten or eleven days. In August a second brood is produced.

Vanessa interrogationis, (Fabricius,) Semicolon Butterfly. This first appears in May at the North, with second and third broods in August and September. The name is suggested by a fancied resemblance of a spot of pale gold color, on the middle of the underside of the hind-wings, to the mark which designates a question, but it more nearly resembles a semicolon. The upper side of the wings is a tawny orange, with brown spots on the hinder part, and black spots in the middle. The hind-wings of the male, except their base, are generally black above, and rusty red, or brown, beneath; the edges and the tails are glossed with reddish white.

The caterpillar is brown, variegated with pale yellow, or *vice versa*, with a yellowish line on each side of the body. Head, a rust red, with two black, branched spines. The spines of the body are pale yellow or brown, and tipped with black. It expands two and a half inches or more.

The chrysalis is ashen brown, head deeply notched, with two conical ears, a nose-like prominence on the thorax, and eight silvery spots on the back. The chrysalis period lasts from eleven to fourteen days.

These chrysalis have an enemy within them in the form of little maggots, which become four-winged flies, which make their escape by piercing holes through the sides of the chrysalis. They lay their eggs in the body of the caterpillar. Great numbers of them are destroyed in this manner.

Vanessa comma, Comma Butterfly. This insect is so named by Dr. Harris, who believed that the American butterfly differs materially from the European, with which it has been confounded. The hinder wings of this butterfly are not so deeply indented as those of the European after whom it has been named. The caterpillar lives upon the hop, and resembles the preceding. The chrysalis is a brownish gray, variegated with pale brown and furnished with golden spots.

The butterfly first appears in May, with successive broods in the summer and fall. It expands from two to two and a half inches.

PRODUCTS OF THE DAIRY IN NEW-YORK.

Our attention has been called to the omissions of the last census, in respect to the products of the dairy in this State, and to erroneous inferences that might be drawn from actual facts. It appears that in the State census of 1845 about a million cows were returned, and that the product of one-third was converted into cheese, the whole amount of which was 37,000,000 lbs., or about 110 lbs. to each cow. The other two-thirds were used for the production of butter, the amount of which was 80,000,000 lbs., or about 116 lbs. to each cow.

The number of cows returned in the census of 1850 was less than the number given in the State census by 60,000.

Assuming these returns as correct, the inference would be that the dairy products of this State were falling off, and the interest becoming less important. But look again, and discover that the product of each cow is much greater by the latter than by the former census, that of 1850 increases the amount of butter 264,361 lbs., and of cheese 12,991,437 lbs. Hence the legitimate inference from these figures would be that the quality of the cows was improving, and the interest made more valuable, with less cost of keeping. The value of this increase of products, with a diminished number of cows, was, at the market prices, $1,202,580 27.

But the figures of the census are not correct. It is true that dairymen have greatly increased the value of their cows. In Herkimer county the average of cheese per cow is said to have been 226 lbs., and of butter 350 lbs. per cow; and one dairy had given an average for three years of 680 lbs. per cow.

We have repeatedly stated that the most abundant milkers would not make the most butter, nor the best butter cows necessarily produce the greatest amount of cheese. These are points too much overlooked, but yet beginning to receive more general attention. From the Report of the State Society, from which these facts are gathered, we learn that in Oneida county, some years since, a bull of the Holderness breed was introduced, whose calves generally proved to be extraordinary milkers. One of these, giving from 25 to 32 quarts a day, was kept with a small cow of the Mohawk breed, giving only 12 to 14 quarts. The milk of both was mixed together, and churned with very unsatisfactory results. The milk of the two was then kept separate. The milk of the Mohawk produced the best quality of butter, nearly equal in quantity to that of the mixed milk of both cows, while it was impossible to make good butter from the Holderness. This cow was then placed among those used for the cheese dairy, and proved valuable. Such results would be brought out, beyond controversy, if experiments like that here described were made by our farmers. No two cows, perhaps, produce milk exactly alike, though among many of them the difference may be unimportant. Who will give us further tests of this description?

Artistic Coloring.—With what colors would you paint a storm at sea? The wind *blew* and the waves *rose*. How should a secret be painted? In violet. How would you paint an absent-minded literary friend? In a brown study. Of what shade of white are snow-flakes? Flake-white. How would you paint the melancholy natives of Berlin? In Prussian blue.

SOILS—WHAT, AND HOW PREPARED FOR CROPS.

High authorities teach us that soils consist of the disintegrated particles of rocks. There is little practical importance in discussing the accuracy of this opinion, but it may be well enough, in passing, to inquire whether it is quite certain, after all, that this is not one of those stereotyped errors that truly scientific men have handed down from generation to generation. It may be true; but we are pretty sure that no one has ever proved it so. On the other hand, strong presumptive evidence to the contrary is obvious on all hands.

The earth being designed for the growth of plants, why should it have been necessary that every particle of it should first exist as part of solid rocks? Besides, what changes of any known rock will produce several varieties, such as some of the clays? We can conceive, indeed, of the changes necessary to produce such results, but we can scarcely believe that our soils have all gone through such steps ere they assumed their present condition. Take, for instance, pure pipe clay. Pure silicious rock must first have been disintegrated and dissolved, contemporaneously with precisely the same process with some aluminous rock, from which everything but alumina has been separated by elective affinity or otherwise, and, being quite free, the two are brought at the right moment into contact with each other, and been at least semi-crystalized. No other process occurs to us so simple as this. No rock consisting of clay, so far as we know, has ever been met with. So of other soils. The theory may be true, but it does not command our ready belief, nor has it claim for unqualified respect. Why may not the elements have been disturbed during the process of crystalization, and the cohesion, being thus broken, the cooling or hardening process have resulted in a loose granular substance, essentially as found at the present day? Has every particle of earth been through a grinding and fining process, so vigorous, so protracted as to reduce it to the exceeding minuteness which characterizes several kinds of soil? Besides, the immense amount of animal matter which has from century to century become a part of the superficial soil, by its numberless combinations with the mineral matters with which it has come in contact, must have very materially affected a large portion of the world's surface. Hence, if the position is true, with this exception, which is usually expressed, the exception is almost extensive enough to form the rule.

The soils of a given region are not of necessity of the same character with the rocks which belong to it. In all alluvial regions, for example, the soil may have been brought from very distant places, and hence the rocks of that region are no criterion of the elements of the soil. Even in mountainous districts the soil may have been formed, to some extent, by such processes, ere the surface was heaved up into those lofty eminences. We know not how else to explain the fact that such differences exist between the rocks and the soil, even in its natural state.

The rule, however, is otherwise. Generally soils and rocks each indicate something of the nature of the other.

Soils are fertile or barren, as they contain the elements existing in plants in a soluble state, or are destitute of one or more of them. Those elements may abound in it, but if they are in an insoluble state the soil is still barren.

Soils of the same chemical constituents vary in respect to fertility ac-

cording to the fineness of their particles. This not only affects its solubility, but its capillary action. Next in importance to fineness of particle is a due degree of lightness or density. Repeated ploughing causes the particles to lie lightly and to favor evaporation. Hence, if too wet, the effect of such culture is favorable. If naturally dry, it may be either good or bad, according as the character of the sub-soil is porous or impervious to water. If the latter, both should be thoroughly opened or neither. We are not convinced that repeated ploughing has a very powerful influence in fining a soil. "Rocks" are not so easily acted upon. We incline rather to attribute the beneficial effects of frequent ploughing and the like to chemical agencies, facilities for increased energy being given by the mere change of its physical condition. We all know that some manures act in both these ways.

The mere absence of moisture may render fertile soils unproductive. Without moisture, solution, and of course germination, is impossible.

The carbonic acid of the atmosphere serves as a solvent to sundry elements that are not acted upon by water, and reduces them to a condition in which they may be dissolved by water. This is the explanation of some of the effects produced by certain mineral manures, and also by suffering lands to lie idle or fallow. The chemical agencies so inherent in the liquid and gaseous substances which abound in the earth and air, are so efficient that, whenever allowed to work without interruption, their effects are quite obvious.

Color, too, has an influence upon the fertility of soils—the darker shades absorbing a much greater amount of heat than the lighter. This has a double influence, the temperature having an intimate connection with the germination of seeds and the growth of plants, and also modifying the amount of moisture (another important agent) held in the soil. On the other hand, light colored soils retain the heat of the sun longer than the dark soils, as a bright tin coffee-pot retains the heat longer than when it is blackened by a coat of japan.

This fact is turned to a practical account by gardeners, in giving to the walls and fences at the foot of which they cultivate or on which they train tender plants, one or the other color, according to the specific effect they wish to produce. If they desire to concentrate the power of the sun to the greatest extent while it is above the horizon upon any such spot, they would paint everything white. If they would retain the heat of the sun to temper the chill of the night, these walls should be black.

These few suggestions may furnish a key to the general system of agriculture. To furnish elements that are wanting, and to render other elements, as yet useless, efficient, manures are applied. The elements that are wanting must be in the manure, or the manure must produce them by a chemical action on the soil. To regulate the amount of moisture, and to secure some other physical advantages, a good system of ploughing must be adopted. Nearly all the culture subsequent to sowing and planting is but the perfection or continuance of the same plan, accommodated to the change in the condition of the crops. The nature of the manures which should be applied, and the extent of culture that may be expedient, will vary with the crop and the conditions of the soil from which it is to be obtained.

A large share of the instruction contained in the books, is but the carrying out of these suggestions in detail, and with a variety of crops. Under such instruction no one would apply plaster to wet clay, for plaster does not contain the elements of which clay is deficient, nor is there anything in

clay from which this substance can form them. But it is otherwise with sandy soils. The effect of plaster is favorable, because it furnishes useful elements, and also by its power of absorbing moisture and holding it within reach of the plant. Barn-yard manures contain the elements of plants more generally than any other fertilizer, and are therefore more universally efficient.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CORN—AND ITS FODDER.

Messrs Editors:—In pursuance of a promise made to the late John S. Skinner, Esq., I made the following experiment on corn and its fodder with my best attention in the summer and autumn of 1852. Having mislaid the memorandum of the results, I have been hindered from presenting them at an earlier day.

Stalks and their fodder below the ear per acre, 1502 pounds; stalks and their fodder above the ear, 814 pounds; husks, 407 pounds; cobs, 658 pounds; corn, 47 bushels.

The variety of corn planted was of the medium size, generally produced in the Middle and Southern States. The weight was ascertained in the dry state. Results, however, would be as variant as the varieties planted, and the growth of the corn under the influence of different seasons. If the wishes of my old friend shall subserve any useful purpose, I shall feel myself amply compensated for the trouble of making the experiment.

Respectfully yours, D. W. Naill.

Sams Creek, Md., Jan. 18, 1856.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SUGAR BEET.

Mr. Editor:—Some years since the sugar beet was highly recommended for its saccharine properties and its great productiveness, and its extensive cultivation in France for sugar. It occurred to me that it might be excellent to raise for stock. I was at no small pains and cost to get some seed direct from France, known to be raised there from the genuine sugar beet. I sowed a pound on a well-prepared field, which grew most luxuriantly, but was greatly disappointed on pulling them to find most of the tops had fallen off, and that full two-thirds of the solid part was *above ground*—some were knee-high! *This* part of course was tough, woody, and had little juice. Had I then known enough to have pulled them while growing, leaves and roots together, it would have furnished first-rate feed for my cows. As it was, the crop paid well, though minus the leaves. I have since produced a very different article, by selecting, at digging time, those having the longest root *below* and the least above ground, and now I get a heavy crop, nearly all

tender and juicy. This induced me to attempt improvement in other crops. My next experiment was made with English turnips. I found imported seed, especially for the garden, early turnips and radishes, far preferable to our own. The growth was more vigorous, plants tender, sweet, and free from worms. My object was to transform those large tops, standing in a *basin*, to a different proportion. For this I selected and set out for seed those turnips having the smallest tops and roots, growing on convex instead of concave extremes. The third year I found, in pulling, one that in shape resembled two tea-saucers put together—having a top covering a space less than a cent, and a single root the size of a pipe-stem more than a foot long, which I preserved with extreme caution, and raised from it nearly an ounce of seed, which I sowed in my potato-field, then sadly affected by the rot. The tops mostly died, and the ground being in good order, the turnips grew admirably, and I pulled seventy-five bushels!—quite uniform in size, few of them less than the admirable specimen, and, to my inexpressible gratification, with only the *one small root and top*,—in shape and flavor all I could wish.

You may be assured I set out a good share for seed, besides giving some to my neighbors to eat and to set out. It is to be regretted that so few are convinced of the importance of taking pains to raise or to procure the seed of improved plants. I have since changed the early June beet from the flat turnip shape to that of the Sweed turnip, yielding now one-third more weight of root, and being improved in its keeping properties. And lately I have much improved the Orange and white Belgian carrots, by selecting for seed only the longest, and such as have long roots of uniform size, (instead of short and tapering roots.) I now get handsome and heavy crops.

LANCASTER, Ms., Jan. 26, 1856. Yours truly,

BENJAMIN WILLARD.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ON THE GROWING OF WHEAT.

THE present high prices of flour give to the subject of wheat-growing peculiar importance. New-England farmers are beginning to inquire whether it is possible for them to produce their own wheat.

When the land was new, very little grain of any kind was imported. The consumption was comparatively small. But little was used for manufacturing purposes. The non-producing class was small, consequently the supply was fully equal to the demand.

But the condition of things is greatly changed. Manufacturing villages have sprung up as if by magic. The old cities have doubled, seven quadrupled, their population within a quarter of a century, and a host of new cities are following hard after them. The town has made rapid advances in wealth and population, while the country has remained almost stationary. While the producers remain about the same, the consumers have been rapidly multiplying. Consequently the demand now greatly exceeds the supply, and the disparity is every year becoming greater.

The manufacturing and commercial interests of New-England are fast getting ahead of her agriculture. No portion of the States has done more for improvement in agriculture than New-England; and no State in New-Eng-

land more than Massachusetts. Yet Massachusetts does but little towards supplying the wants of her own citizens. The same is true of Connecticut and Rhode Island. The three northern States produce perhaps enough for their own consumption, or what is equivalent to it. Yet there are few families who do not depend upon the West or Canada for flour, and all the cities and large towns are indebted to Ohio or Maryland for corn.

Not only flour, but corn, rye, beef, pork and mutton, and butter and cheese, are now brought in great quantities from the West. Even in the Connecticut Valley, formerly regarded as the Egypt of New-England, where the sons of Jacob from the hill countries might always find grain, corn is now imported for consumption by the farmers themselves. New-Hampshire is emphatically a grazing State. Her granite hills furnish but few arable acres. Formerly she did much towards supplying Boston market with meats and butter and cheese. Now most of her stores are supplied, not only with western flour, but with Ohio pork and New-York butter and cheese.

There is certainly no cause of alarm in the fact that New-England is turning her attention to manufactures, nor that she procures the necessaries of life from her neighbors; provided she is able to pay for them. And if the farmers find it for their interest to buy their grain and devote their grounds to other crops, who is harmed thereby?

As a general rule, however, it is better that the farmer should produce what he needs for home consumption. I doubt not it would be better for the cotton planter to grow bread and meat enough for his own use, rather than devote all his grounds to cotton, and procure these necessaries from abroad. And for the New-England farmer it would be far better to produce as far as possible, the necessaries of life. He may obtain more money from tobacco, hops, or broom-corn, than from bread stuffs, but taking all things into the account, will he be better off?

For what he procures from abroad, he must pay not only the cost of producing, but a profit to the producer, and the expense of transportation, and contribute to the support of a whole troop of commission merchants. Nor is this all. The land is drained by this exchange process.

Tobacco and hops yield nothing to repay the soil; broom-corn but little. It should be a rule with the cultivator to supply the soil each year with a as much nutritive matter, or *pabulum*, as he in the form of crop, takes from it; or, if not every year, every circle of rotation in crop.

But to the question, can wheat be grown advantageously in New-England? I answer, yes. That there are obstacles cannot be denied. So of all crops. In virtue of the curse pronounced upon the earth, briars and thistles and weeds spring up in the path of the cultivator. By the sweat of his brow he is to procure his bread. There are difficulties in procuring the necessaries of life in all their forms and in all climates. The name of the enemies with which we have to contend is legion. In addition to those named to the first tiller of the soil, is the fickleness of the climate, want of adaptedness in the soil, and the myriads of insect tribes, which seem to constitute supernumerary curse, not known or dreamed of by those the cultivators of olden times.

In the best wheat-growing countries, difficulties are met with and overcome. So they may be here.

I know a farmer, living on the banks of the Connecticut, who has raised wheat successfully for more than twenty years in succession, with an average yield of twenty bushels per acre. He thinks there is no insurmountable

difficulty in raising wheat; that with proper precautions it is as sure as any crop he raises, and pays as well.

What one man has done, others can do. I believe that every farmer in New-England who has sufficient tillage land, may produce his own wheat, and that it would be for his interest to do so.

In my experiments in wheat growing, I have succeded best, seeding after clover. Let the second crop, or after-math, be turned under, ploughing deep and laying the furrow flat, early in August. The first or second week in September, harrow thoroughly, reducing the surface to a fine tilth, and sow from one and a half to two bushels to the acre. Great care should be used in the selection of seed, to get the best variety and that which is entirely clean. The seed should be soaked in strong brine from twelve to twenty-four hours, and then it is well to roll it in gypsum. After sowing, the land should be harrowed again most thoroughly with a heavy drag, that the seed may be buried deep. Some insist that it should be sown in drills and covered with a plough. It may be well, but I have found no difficulty in covering with a harrow. Lime is indispensable to a healthy development of this plant. Therefore, if not found in the soil, it must be supplied. I think it well to apply a dressing of lime and ashes in about equal quantities, say ten bushels of the mixture to the acre. After another light harrowing, let the roller pass over it, and then leave it till spring.

As soon as the ground is sufficiently dry in spring, let it be again thoroughly harrowed. This spring harrowing I consider very beneficial to all winter grains. The surface of the ground becomes hardened by the rains and snows of autumn and winter to such a degree that the tender fibres of the roots with difficulty make their way in pursuit of nutriment.

No cultivator thinks of leaving his Indian corn without assistance. The ground is disturbed and made light about the plants a number of times during the season. The wheat plant is no less tender, and needs no less the fostering care of the cultivator.

There is no danger of injury by this process. Like the boy who had received a severe flagellation, the young plants seem to be "refreshed." Furthermore, many of the roots are divided, and thus the number is multiplied and more equally distributed.

Wheat may also be sown advantageously after corn, being careful to get it in early in October.

In the northern portion of New-England, farmers are now mostly in the practice of sowing wheat in the spring. The reason assigned is, that fall sown wheat is liable to winter-kill.

In November last I was in Wolfboro, N. H., which by the way is a beautiful village on the eastern shore of Lake Winnepisseogee, one of the most charmingly lovely sheets of water the eye of man ever rested upon, where I learned among other things, the following facts, which may interest your wheat-growing readers.

A. S. Avery, Esq., of Wolfboro, sowed a piece of ground with wheat on the 16th of June last. On the 16th of October he harvested it. Amount of seed per acre, one and a half bushels. Variety, Fife, (Russian.) Yield per acre, twenty-six bushel clean wheat, and about six bushels impure. The ground had been recently broken up from grass. Mr. Avery thinks this variety the best; has sown it four years; not affected by rust, mildew, smut blight, weavil, or any such thing. R. B. H.

POOR FARMERS.—HOW TO IMPROVE.

THERE are certain points in reference to which a farmer who is obliged to mourn over his poverty and his small crops ought to inquire, and inquire earnestly, for himself and for his family.

The first is, *is it an object to raise good crops?* This is the very first thing to be settled. Nor is it one which can be properly overlooked, even for a single season. The question is not, in fact, settled by one quarter of the farmers of this country. They know that good crops are good things; that large crops make heavy purses, after they have been gathered and sold; but they are equally conscious that it costs more money to cultivate land than to let it yield spontaneous crops. They know that much hard labor is required on many farms; and these and similar thoughts, like idle fancies, run through the brain, and lead to most indefinite and *unproductive* conclusions. These men are very far from being convinced that it is desirable *for them* to raise valuable crops. They would not hesitate, if the question submitted had reference to the harvesting of crops already grown. There is something so satisfactory, so perfectly delightful in standing on the borders of a field burdened with a rich harvest, waiting to be gathered in; there is so much pleasure in the consciousness of entire success in conducting the various processes that must be sought for with toil and patience for months, that even the seven sleepers would rouse themselves long enough to take possession of such a prize. But this is not the inquiry we have propounded.

We would ask such a farmer, addressing him individually, is the conviction clear in your own mind that it is important for you to raise large crops? There is more involved in this than appears on the surface.

Let us present the inquiry, not, as just intimated, while the golden crops are spread out at our feet, waiting only to be gathered by the husbandman, but as he sits around his family hearthstone, and the cold winds are heard without—or when, in the early spring, the coming seed-time reminds us of the conditions that must be fulfilled ere barns and granaries shall be filled with food for man and beast—in such circumstances do you wish, *earnestly*, for such harvests? Has anything more than vague dreams run through your brain in regard to this subject, without especial consideration, or earnest thought, or careful calculation? Have not the labor and the cost overshadowed the rich products? What is, in your case, the actual cause of your want of success? Give us, or rather give yourself, we would say to such persons, an honest confession, the decision of your own candid judgment. Are you persuaded even that you are now in a condition from which it is desirable that you should escape? That it now is, actually and truly, an object of great importance that you should become, in all respects, a successful farmer?

If we are not mistaken, there is no such clear, definite, fixed conviction in the minds of a large portion of our farming population as is required. They pass on in the current, at times discontended, sometimes anxious and perhaps somewhat envious, but seldom in a state of earnest and rational inquiry as to modes and means for essentially improving their own condition.

It is indispensable, in all such cases, to produce a deep and permanent conviction of the importance of the end to be gained. And how can this be done? *Can* these dry bones live?

The power to move these minds must come from within. No external

agency is sufficient for this. But there is a process, not now suggested for the first time, but one which we have never drawn out at length, in which we have great confidence as a means of essentially improving the condition of the agricultural interest through the country. Let us illustrate by a story:

We were once a teacher in a select school, with some forty boys before us. Our predecessor, a most excellent man and most successful teacher, we looked up to him as we stood in his shadow, carefully described to us the weaknesses and faults of those whom he supposed would give us the most trouble. One of these we will call John. He had been an idle boy. He was lazy, indoors and out. He was thought stupid, and he certainly was a poor scholar, and "had worn out several pair of shoes," as the boys had it, in going to his teacher's study to learn the lessons he had previously neglected. We, of course, anticipated similar trials with him. But we took especial pains to "get the right side" of John. We treated him very kindly, and showed a disposition to help him whenever he met with any difficulty. He took hold at once and in earnest. He was in good classes, but the first day of our connection he came up with "perfect" in his lessons and his record of deportment. We were delighted. So was John. He went home happy. He had conquered his indolence. The victory was easier on the day following. The third and the fourth and fifth day did not find him careless. On Saturday he had secured the head of his class for the following week. He had triumphed indeed. The Saturday following was the same, and for weeks he did not miss in a lesson, nor get any marks for bad deportment. He had tasted the PLEASURE OF SUCCESS, and it was not to be thrown away for the vapidness and vexation of indolence.

In order to call forth the energies of a man, he must by some means be led to experience the difference between failure and success. Multitudes know the bitterness of the former, but they seem practically to assume that success, at least in this case, is impossible, or that it would not pay. They over-estimate the magnitude of obstacles and very much under-rate the benefits of success. To a considerable extent the obstacles that are conjured up are mere fictions, while the process and the result to which he comes, seem to him, at least, plausible.

A boy is shown a large sack of corn, and is directed to take that corn to a given place. He tugs at it a moment, and cannot move it, and therefore sits down and cries about it. He fails to do his task and gets punished. It never occurred to that boy that he might divide the quantity, carrying only a small part at a time, and by thus dividing the burden, accomplish the task. So our farmers, supposing that it would cost more by a hundred dollars a year to cultivate their small farm properly than they expend, and know that they cannot raise a quarter part of this, they suffer the whole thing to pass by. The hundred dollars cost seems indefinitely large, while the view of the benefits to be gained is very confused, and their value is considered so uncertain and indefinite that no real permanent desire is excited to obtain them.

Were we an agricultural missionary, going round among the unsuccessful of the craft, we would induce such to begin by trying improved processes in a single lot, and we would select one that bore but little, and was yet capable, without excessive labor or cost, of bearing much. Let the farmer see his plan successful; let him see that a different system of cultivation has actually paid its way; and, we believe, in nine cases out of ten, like our John, he would go on, and extend his improved plans till they covered his entire farm. There is nothing like actually tasting of the fruits of success,

in any pursuit. Even the pain of broken bones or wounded limbs is stilled by the shout of victory, as the conqueror returns in triumph after a furious battle. So toil, constant, and severe, and protracted, is all forgotten while the rich harvests smile from stored garners, and the signs of coming winter call up no fears of want or suffering. We say therefore to such, *Try this small lot.* Make an experiment that will not cost too much, and learn how well it pays.

"But how shall we try? Our pockets are empty; our heaps of manure, *they are not* to be found; and we are already burdened with debt." Well, this is a hard case; but the snow is just going off, and though it is quite too late for the best preparation for the coming season, we can do something. Let us see.

There are certain fertilizers which are at the command of all, and which pay well for the labor they ordinarily demand. Among these are clay, sand, ashes, broken straw, tops of vegetables, perhaps sea-weed, black swamp mud, shells of some kind, bones, marl, charcoal dust, sawdust, soot from the chimney, rags, decayed vegetables, and, above all, the contents of your privy. For another season this list can be much extended, including dead animals, hair, bits of leather, hides, horns, tan, decayed wood, leaves, weeds, etc. Besides these, you can probably afford to purchase a small quantity of lime, plaster, guano or poudrette, as circumstances may determine. Suppose you thus expend only five dollars, being first assured that you purchase that which is best suited to the condition of your land and to the crop. The materials are at hand, and now let us proceed to apply them.

With the opening of the ground, cover your sandy soil with a coating of clay, or your clayey land with sand. A well-made compost of these materials would be much better, but this is all we can do for this season. Your ashes and lime you can use with the clay on your sandy soil, or use it by itself, if more desirable. This will depend on the quantity at your disposal. With your lime, or elsewhere, you can plough in your broken straw, or your sawdust, rags, marl and shells. Your vegetable matter, swamp mud and charcoal dust, (and sawdust if you please,) and soot, you can plough under, all mingled together. Or better still, if you will take your swamp mud, charcoal, sawdust, ashes, and lime, and mix them with a much larger quantity of sods, and the contents of your privy, and leave them to act upon each other for a few weeks, and then cover them with a shallow furrow, at a second ploughing you will reap the benefit of your labor. Or your marl, and shells, and lime—the whole being reduced to a powder as much as possible—may be applied by themselves, while the other matters are used elsewhere. Charcoal dust is good everywhere and with almost everything. Soot is best as a top-dressing. Shell marls are good on all soils; clayey marl is best on sandy or gravelly soil. The green marls of New-Jersey are suited to sandy soils, being rich in potash, and are efficient either in large or small quantities, from 20 loads to 20 bushels per acre.

For another season, these vegetable matters with weeds, etc., should be mixed with many times their quantity of sods, and with your manure from barn-yard and hog-pen and privy, in a compost, under cover, if possible, and allowed to remain all winter.

It will be more satisfactory to apply the fertilizers you have purchased by themselves, so that their effects can be well understood, and you will probably find that you can manufacture as good a preparation as Mexico or Peru can furnish, and at a much cheaper rate.

But you must be thorough in your treatment of the small parcel of land

that you would improve. Leave nothing half done. Manure abundantly, plough and hoe wisely, and take good care of the crop. *If need be*, leave a part of your land entirely untouched. Next year it may pay for the rest which you give it.

Try this. Try it on a single lot—nay on a few rods only; and if you ever regret it, be good enough to describe the condition of your land, and the labor and applications, on the result of which you have been disappointed, and forward to us for publication.

We are thoroughly persuaded that our agricultural societies might do very much for the agriculture of the country by loaning money for such uses. It might be amply secured by a lien on the crops, or otherwise, and many farmers, who are now a reproach to the craft, would become earnest and successful examples and advocates of reform.

THE RASPBERRY.

The following remarks by a writer in the *Horticulturist* for the past month, will be useful to our readers:

From a given amount of money, the raspberry will, I think, return a larger amount of enjoyment and profit than any other fruit—the grape not even excepted—raspberries may be grown in almost every variety of fertile soil with nearly equal productiveness, but with greatly varied luxuriance, two constant requisites being maintained—depth and richness of soil.

In manuring for the raspberry, a deep alluvial soil, rich in vegetable mould, will require a light dressing of well-rotted stable manure, with a top dressing of ashes immediately after planting, employing from ten to thirty bushels to the acre. For a light sand or loam, a liberal dressing of compost will be necessary; to four loads of vegetable muck, add one load of rich barnyard manure, and from four to eight bushels of unleached ashes; and if lime is cheap, it may be advantageously used to twice the amount of the ashes, together with salt lye, which is the best addition to the compost that can be used for this fruit. Mulch the roots well, to keep the ground free from weeds; but the grand point to be insisted on is depth of culture, which leaves a constant supply of moisture, obviates the danger of too much wet, and gives scope for the ever-active roots to hold their revels, which they manifest in a profusion of fruit.

For the growing of good fruit it is not *necessary* that the canes should be supported, though it is advantageous, and also convenient in picking. The most obvious method is to support the canes of each hill with a stake; but a more effective and convenient way would be to stretch a wire along the rows, supported by a firmly-braced post at each end, and at intervals of about thirty feet drive stakes into the ground to support the wire at an elevation of about three feet, or four feet for the most vigorous growers; spun yarn will answer.

The rows should be four feet apart. North of the latitude of Philadelphia (and there also) lay down and cover the canes in winter. When the bearing season is at an end, the old canes should be cut out, and the shoots that have sprung up for next year's bearing should be thinned to the proper

number, varying according to the strength from three to five; remembering that the crop is made or marred the year previous to its production. In choosing plants, the root, and ripeness and solidity of wood, not length of canes, should govern the choice; large canes, with small roots, are undesirable.

My first choice as a market fruit is the Hudson River (True Red) Antwerp, for its size, exceeding productiveness, and its firmness, which enables it to bear transportation. The current year one thousand dollars net were realized here from one acre of this variety. For field culture it deserves its celebrity, but for the garden it is much excelled by the seedlings of Dr. Brinkle. Fastolf is nearly equal in productiveness, but a much more vigorous grower, and somewhat more hardy. Its rich berries almost burst with their fine juice, and do not bear carriage well.

Franconia is a vigorous grower, and rather more hardy than either of the above, with large, dark-colored fruit, bearing carriage nearly as well as the Antwerp; it is a late bearer, of high flavor, and especially excellent for cooking.

Knevett's Giant is truly gigantic, excellent for the dessert, and for preserving. Rivers' new large-fruited Monthly had been a disappointment till I determined to thin out offsets, and let no more grow than were required for fruiting, and that had the desired effect; and it has proved the most productive that I have cultivated, more than twofold of the Red Antwerp.

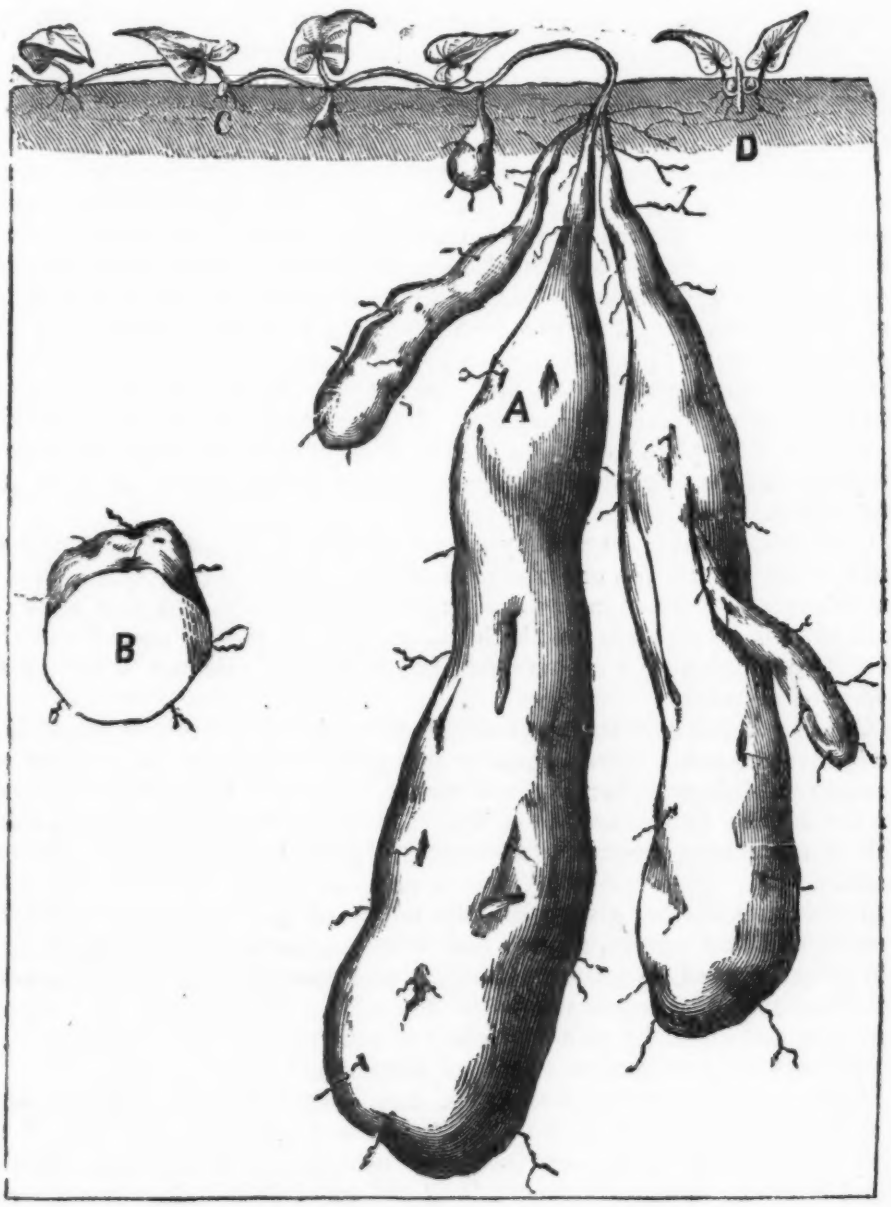
The Yellow Antwerp is a very good variety, but its berries are so much softer than Hudson River, that it is not grown for market. As Elliot remarks in his *Fruit Grower's Guide*, "it will soon give place to Brinckle's Orange and Colonel Wilder, which are far better varieties."

Ohio Ever-bearing, by those who like the black-cap variety, will be greatly prized, bearing as it does profuse clusters. Catawissa has much the habit of the last, but the fruit hitherto has not been comparable to it in flavor.

Col. Wilder is a white berry, of brisk, rich flavor—productive, excellent and hardy. Brinckle's Orange is among raspberries what Newtown Pippin is among apples. In conversation lately with Mr. Charles Downing, who is eminently conservative, he remarked: "This is by far the best raspberry in cultivation." It should have been called Opal instead of Orange, its translucence suggesting the brilliant play of light of that gem, and its beauty is equalled by its excellence; it is very vigorous, hardy, and productive; continues long in bearing; most excellent in every respect for field and garden.

THE SUGAR CROP.—At a convention of those interested in the sugar trade, held in New-Orleans in January last, the Hon J. Moore, President of the meeting, stated the sugar crop of 1854–55 as follows: 346,634 hogsheads of sugar, worth $40 per hogshead, and 577,840 barrels of molasses, worth $7 20 per barrel. The value of the sugar was estimated at $14,000,000, and of the molasses $8,000,000. The convention adopted resolutions in favor of some other place in Louisiana than New-Orleans as a sugar market.

CHINESE OR JAPAN POTATO.



DIOSCOREA BATATAS.

This new esculent is attracting considerable attention, from our journalists at least, and the present condition of the potato gives especial importance to any substitute that is offered. The following description of it is taken from a pamphlet published by Messrs. Wm. R. Prince & Co., Flushing, who have the tubers for sale.

This most important esculent was first introduced to Europe in 1850, it

having been sent to France by M. de Montigny, French Consul at Shanghai, in Northern China, who transmitted a few roots to some learned men. It did not however attract their special attention to its great value and immense importance, until the year 1853, when some highly intelligent botanists recognized the great advantages to be derived from its extensive culture, and devoted themselves to its increase, and to the development of its merits.

Finding this root to be superior in its farinaceous properties to either of the cultivated species of potato, and that it was in no case subject to decay, whether in the ground or out of it, and was also of so hardy a character, as to withstand the severest winters uninjured, they have now come to the conclusion, in common with English botanists who have made similar experiments, that the Discorea Batatas is destined to supersede the precarious and uncertain culture of the ordinary Potato, *so liable to rot and other diseases;* and that the grand desideratum, a substitute in itself more valuable than the ordinary Potato, has at length been found. So strongly confirmed is this opinion in Europe, that we find it supported by all their leading Agricultural and Horticultural publications, and even by the "*Mark Lane Express*," the principal representative and expositor of the agriculturists of Great Britain.

Roots of this plant have been produced in Middle and Northern France, weighing two to two and a half pounds, from tubers planted in April and dug in October.

One great point of superiority possessed by it, is that the roots may remain in the ground two or three years, always enlarging in size, and equally nutricious and excellent in flavor. Experiments have proved that when the roots are left for eighteen months in the ground, the yield is more than treble that of roots left but for one summer, and it is also considered that they are improved in quality. . . . . .

One very peculiar character of this plant is, that its roots run *perpendicularly* into the earth, thereby greatly enlarging its capacity to produce the greatest possible crops from a given space of ground. It has been calculated in the French publications from the experiments there made, that an acre will, in six months, produce 36,000 pounds, and in eighteen months, 120,000 pounds.

It possesses another great advantage:—the roots when placed in a cellar remain firm and perfect, as well as free from sprouts, and they can be kept out of the ground a year, without injury or deterioration of their alimentary qualities, and this property renders them invaluable for use in long sea voyages, and especially as a preventive of scurvy. . . .

The following will serve as a brief description:

Leaves opposite, triangular-cordate, deep green; Flowers, dicœcious, composed of six petals, pale yellow, in clusters springing from the axils of the leaves. The male plant only has been introduced to Europe and America. Root fifteen to twenty-five inches long, and two inches in diameter, tapering to the head; the outward appearance similar to the white variety of the sweet potato; skin thin, readily pealing off when cooked; flesh snow white, delicately farinacious, with a slight Almond flavor, exceedingly grateful when used in the same manner as the ordinary potato, and deemed both richer in nutrition and superior in quality. It can be cooked by water or steam, or roasted, and in appearance and taste is like the finest mealy varieties of the common potato. It requires but ten minutes boiling, whereas the common potato requires twenty minutes.

This root possesses another great advantage: it produces a fine, pure white flower, which will compare advantageously with the wheat flour of any country, and is equal if not superior in nutriment.

PERIOD OF PLANTING AND PROPAGATION.

As the Dioscorea is perfectly hardy, the tubers, as hereafter described, or small sections or eyes of the root (the same as potato sets) may be planted at the first opening of spring at a depth of about three inches; but during the present scarcity of this root, the course has been adopted of planting the sets closely in an ordinary hot-bed frame to start their growth, and afterward planting them in rows in the garden or field. The same culture as pursued everywhere with the common potato will serve successfully for the Chinese one.

The propagation of tubers for the extension of stock is also very simple. Like the sweet potato, the Dioscorea is a trailing vine. In six weeks from the time of planting the pieces of root, they will have formed shoots five to six feet in length. These shoots may be buried for two-thirds their length in slight furrows, one inch deep, allowing the leaves alone to be out of the earth, and the extremity of the shoots entirely so. Another mode is to take off two-thirds of each shoot and cut it into sections, each having a leaf with a small portion of the stem, (*D. plate*) and planting these in a bed, covering all but the leaf. In either case they will make roots after the first rain, or if watered, and in twenty or thirty days each will form a bulb or tuber at the joint near the leaf or at its axil. These must be carefully preserved when taken up in the fall, and will serve for spring planting the ensuing season; the tubers being as valuable and productive as sections of the roots. Tubers the size of a large pea, planted in the spring, form beautiful regular roots fifteen to twenty inches long by autumn, as has been fully proven *here* the past season, in confirmation of the European statement.

EXPLANATION OF PLATE.

A.—General representation of the root formed from a tuber in one season, one-fourth the natural size linearly, or one-sixteenth the size superficially.

B.—Section of root.

C.—Seed tuber formed by covering the vine.

D.—Seed tuber formed from a section of the shoot.

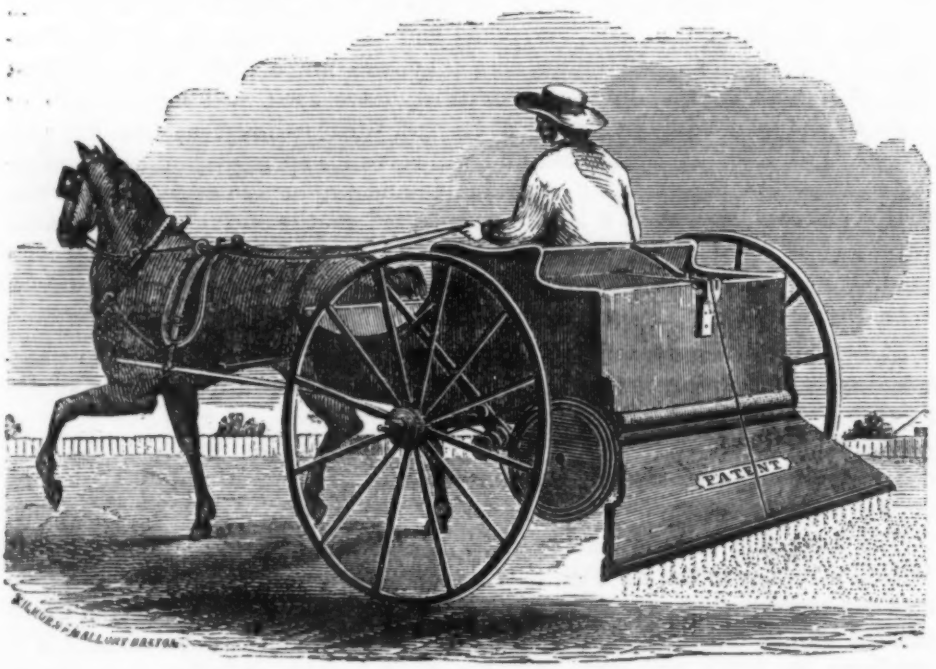
The foregoing is sufficient to show the claims which are made for it. Whether its flavor and its ability of production, etc., will bring it into general use remains to be tested. We have never tasted, nor even seen a specimen of it. If one is sent to us we will pass our judgment on it. If it produces as freely and keeps so long as it is here described to do, large quantities might be imported from China or Japan, at an immense profit, ere it is common through the country. A dollar a root for a potato ought to command a very fine article.

DISTEMPER IN DOGS.—We are a great friend to dogs, if they have sufficient moral character to let the sheep alone; but when they meddle with mutton, our advice is a pill of cold lead or a salutary portion of strychnine. With distemper in young dogs we have had some unlucky experience. The disease is apt to come on when the animal is laying off his puppyhood, and he will droop and pine away, and lose the use of his hind legs, and finally go off into convulsions. We lost a beautiful pet spaniel in that way

a few years ago, that we brought all the way from Massillon, wrapped in a pocket handkerchief—a present from our friend Cahill. We believe the best medicine for this distemper is the homœopathic arsenic pills, or if these are not at hand, take arsenic from the druggists, say six grains, to be divided in three doses; give one grain first in the morning, then two grains the next morning, and last three grains the third day. Give it on a small piece of meat.—*Ohio Cultivator.*

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

NEW AND VALUABLE SEED-SOWER.



BOSTON, Feb. 8, 1856.

M. P. PARISH, Esq.:

DEAR SIR:—Knowing that a good share of your journal is usually devoted to the interests of *agriculture*, and knowing also that you make it a point to pick up all information which will be of general interest to the farmer, I would undertake to describe to you a simple invention of an ingenious mechanic of this city, which invention, when brought into general use, will work labor-saving wonders in the line for which it was invented. The machinery referred to is a seed-sower, worked broadcast or in drills, and being without valve or geer requires no skill whatever to operate it. It consists of a hopper of any size you choose, at the lower extremity of which is a longitudinal opening, outside of which lies, in the same direction, a pair of elastic surfaced rolls or regulators. These regulators have their surfaces so near to each other as to prevent the escape of seeds between them. On one of the ends of the lower roll is fastened a *cone*, around which runs a belt,

passing round a similar cone on the inside end of the hub of one of the wheels. This cone is so made as to allow of sundry changes of speed in order to seed light, medium, or heavy. The seed as it lies in the hopper presents itself directly to the opening between the rolls, and giving the rolls the slightest motion outward, you draw a *mouthful* between them the entire length of the rolls, no one kernel of seed riding another. Turn again slightly in the same direction and the first *mouthful* is discharged into a distributor, and other seeds fill the entire opening as before, and so on until the hopper is exhausted. The distributor into which the seed falls as it comes from the regulators is no more nor less than a seed-board with a series of radiating tubes, down which the seed courses until it reaches a point some two inches from the lower edge, where the tubes cease, and the seed is allowed to again mingle and fall over the edge of the distributor in one continuous sheet in immediate vicinity of the ground, if the farmer is sowing in windy weather. If not windy, the distributor, being *hinged*, can be raised to any given height found practicable.

The all-important principle involved in this simple machine is this: The discovery of the successful method of taking all kinds of seeds from a hopper with flexible rollers without injuring the seed, and doing it without the aid of valves, geers, or any other objectionable motion or appliance formerly used. The principle of these flexible rollers can be carried to any extent, so as to sow two rods wide if necessary, and so certain is the movement of them that the farmer can lay his seed upon the ground with mathematical accuracy and in quantity to the acre his soil may require. As a machine for sowing broadcast or in drills, I think it has no rival, for I find upon examination that a man with a hand machine can sow 15 acres daily, and do it in a manner impossible to accomplish by hand. With the use of a horse—a boy driving—thirty to forty acres is a day's work, and with two horses, sowing with a machine distributing twenty five to thirty feet wide, sixty to a hundred acres can be covered every ten hours! A farmer can make his own calculations upon this matter, if the idea of putting down seventy-five acres per day seems fabulous. He will find that his horses walking at the rate of three miles per hour, sowing twenty-five feet wide, will cover but a fraction short of ninety acres in ten hours! Every farmer of however limited means can afford to have a machine either for hand or horse power, for by the use of it he can ordinarily save the price of it in labor in *one year*. There is no kind of grain whatever but what it will sow with accurate rapidity, from corn or cotton seed down to clover and herds grass, also all kinds of dry fertilizers to wit: Guano, lime, plaster, bone-dust and ashes, dusting the ground merely, or laying it on with a perfect coating if desired. The same machine is so constructed as to sow any width you choose, from one foot to the full capacity of the machine, enabling the farmer to finish out a narrow strip of land in case necessity requires.

For drill sowing the drills are so constructed as to admit of changing the lines of drilling from wide to narrow as the operator chooses, depositing the seed at any desired depth and covering at the same time. The same width of land can be drilled at one and the same time, that can be sown broadcast, there being only the necessity of a change of seed-board. Any quantity of grain can be carried in the machine, and when the boy discovers that his hopper is nearly exhausted, all he has to do is to cut the string of one of the bags carried under his feet and turn the grain into the hopper as the machine moves on.

I believe that this simple piece of agricultural machinery is destined to

take an important position in our grain-growing West, and save a vast amount of labor now for the want of it uselessly expended. I have entirely, unsolicited by the inventor, imperfectly described the same, and have to hope that ere long farmers may have the comfort and convenience of seeing this as well as all other labor-saving machinery in their line, relieving the drudgery necessary to their occupation. Respectfully,

W. S. S.

The cost of these machines is as follows: Those sowing from 3 to 5 feet wide, $7 a foot; from 8 to 10 feet wide, $6 50 per foot; from 15 to 20 feet wide, $5 per foot.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

BROAD-CAST AND TOOTH GRAIN DRILLS.

Mr. Editor:—From private letters received from Mr. Wm. S. Sampson, of Boston, we are led to make some remarks upon Grain Drills. We believe them to be useful implements, but have always expressed ourself in favor of the "Tooth Drill," prefering it to the "Broad-cast," for the plain reason that we are not acquainted with the latter instrument. Mr. Sampson asks us to explain why a "Tooth Drill" will produce more grain to the acre than the "Broadcast" implement. We give this reason in answer to his inquiry: It has been found impossible, it would seem from the experience of others upon the subject, to make a "Broad-cast Drill" so that it can be made to cover grain at a desired depth. In other words, some of the grain is not put into the ground deep enough, while on the other hand some of it, it would seem, is put in too deep. An experiment, tried by a Mr. Bowman of this country, showed that when wheat or other grain was deposited at the depth of *four inches* beneath the surface of the soil it would not grow, but would decay. The same grain, if it had been put two inches below the surface, would, as proven by his experiments, have taken root and grown. Sometimes we have noticed that grain even on the top of the ground has grown, but the straw was of weak organization. Mr. Bowman's experiments proved that grain should be put into the ground generally about *one inch and a half* in depth. In sowing or putting in grain a man must usually be governed by the condition of the soil. If dry, sow or drill in deeper than if the soil were wet.

Now the question is, "Can a 'Broad-cast Drill' be made so that it will sow grain an equal depth?" Mr. Sampson says there is a "Broad-cast Drill" manufactured in Boston, which is very simple in its mechanical construction, that will sow at from thirty-five to one hundred acres per day. We send his letter herewith for your perusal, and for publication in connection with this article.

We cannot say whether a tooth drill would produce more grain per acre than one made like the Boston broad-cast instrument. We always have used the tooth drill, and have been successful in its use. Numerous reasons can be assigned for using the tooth drill, and we do not know but that equally as many reasons could be given in favor of the Boston broad-cast drill. The advantages of a tooth grain drill are these:—*First*, It drills in the grain any

desired depth; *Second*, It puts it into rows, and between those rows the sun's rays are admitted; *Third*, It serves as a harrow, and consequently is a substitute for it; *Fourth*, It causes grain to grow a uniform height, and consequently the grain heads are generally about the same size. The yield of grain, after taking into consideration all these things, must, of course, be much greater than if the same ground had been sown broad-cast by hand. At least we are of opinion that such is the fact. Though we are of opinion that the drill of which Mr. Sampson speaks is a very valuable implement, and we wish he would favor the readers of your journal with an idea of the same. We believe in spreading agricultural information. If a broad-cast drill is better than a tooth drill let us hear of its merits through the press.

BALDWISVILLE, N.Y. Very respectfully, W. TAPPAN.

[The following is the letter referred to by Mr. Tappan.—ED.]

BOSTON, Feb. 7, 1856.

W. TAPPAN, ESQ.:

DEAR SIR:—Your favor of the 31st ult. is safe at hand. I am obliged to you for the opinion therein expressed. I still, however, cannot see why *drill* sowing should be preferable to *broad-cast*, provided the latter is *evenly* done, for the reason that I supposed the ground being *entirely* covered would yield much better than when only *partially* covered. I am going upon the supposition of *yield* only, in the one case and in the other. Will you explain?

It has always been presumed by me to be a desideratum with the farmer to have his soil well covered, and, when once done, the crop "did" the best, and the yield was the greatest.

This "seed-sower" of which I spoke in my last is well calculated to scatter the seed uniformly, and cover the ground with a mathematical quantity as the farmer may in the outset choose, and do it so rapidly, that nothing appears to be left for the machine but complete success. I am so little acquainted with the modus operandi of practical farming that I am quite in the dark as to the farmer's necessities in the way of labor-saving machinery, but if allowed to surmise, should judge that the mechanic was fast coming to his relief. The inventor has already entered the field with the *reaper*, the *mower* and the *raker*, and now if I mistake not the *sower* is to be added to the list, not a mere *hand* machine, but a machine doing its work with wonderful accuracy, at a nominal cost, and seeding from *thirty-five* to one *hundred* acres daily! These astonishing results are brought about by a piece of machinery, so simple in its construction, and so certain in its operation, that the wonder is that the method was not thought of before. Always awaiting your advices with pleasure, I remain Your friend, WM. S. SAMPSON.

No. 2 Broad, corner State street.

COAL-BURNING BOILERS.

A BRIEF description of the various forms of coal burning boilers now in experimental and practical use, will be interesting.

Boardman's Boiler.—The fire-box is of the ordinary kind. The waist of the boiler is nearly of the same shape, in section, as a flat-bottomed smoke-box—such as on the Taunton, Rogers or Norris engines. A shaped flue

extends from the upper part of the fire-box throughout the length of the boiler. In the flat bottom sheet of this, tubes are set, extending down to the flat bottom of the boiler. Under this is a pan or bottom, serving as a flue for the smoke. This flue or pan continues for the whole length of the bottom and enters an ordinary smoke-box at the front end. It is seen that the fire goes through the tubes, while the water is around them, as in the ordinary boiler.

Phleger's Boiler.—We are not quite sure but that Mr. Phleger's later improvements may have dispensed with some features contained in his boiler, as seen by us last winter. But presuming there has been no change, the following will answer:

The water space around the fire-box extends also under the bottom. The grate is made of tubes filled with water, and opening into the water space of the fire-box. About two feet back of the tube sheet is a diaphragm or water bridge, rising from the water bottom, say three feet high. From the crown of the fire-box, and within perhaps 18 inches of the tube sheet, another diaphragm or water bridge also comes down about one foot—this bridge or water space being inclined toward the tube sheet so as to deflect the flame and sparks downward. Both water bridges, of course, go entirely across the width of the fire-box. They protect the tube sheet from the direct blaze from the coal, and prevent particles of coal from being drawn through the tubes. It is proper to say that in front of the main water bridge, or between that and the tube sheet, there is no water bottom, but only a door through which ashes and cinders can be removed. The fire-box is inclosed, however, practically air-tight, and the draught supplied by a fan, worked by the exhaust steam. The barrel and tubes of the boiler are the same as in any ordinary locomotive.

Dimpfel's Boiler.—The fire-box is of the common kind, except so far as relates to the fixing of the tubes. From the front side of the fire-box, in the usual position of the tube sheet, a large flue opens, and extends nearly through the whole length of the boiler, leaving only an ordinary water space of three or four inches around it, and against its forward end. From near the forward end of this flue, a chimney opens up through the water and steam room above it, and is continued, in the usual form, above the waist of the boiler.

The tubes, which we are now to describe, carry water, and are surrounded by fire. These tubes are set in the *crown* of the fire-box, below which they are bent with a round bend, and thence run horizontally through the main flue or combustion chamber, opening again into the water space at the front end of this flue. These tubes are of iron, $1\frac{1}{4}$ inches in diameter outside.

Winan's Boiler.—This is in the most general use of any for burning both hard and soft coal. The principal peculiarity is in the fire-box. The grate is very long, say seven feet. The grate bars are cast very heavy, two together in one casting, and a shank comes out from each, through the back of the fire-box, and in this shank is a round hole through which a rod or handle is inserted to stir the grate and loosen the coal. All along the width of the furnace, and down to the grate, a wide grated door is fixed. The lower edge of this door swings just even with the top of the grates. The grating or openings through this door are upright slots, say 5 by $1\frac{1}{2}$ inches, quite near together, and for the double purpose of admitting fresh air constantly to the back side of the fire, and for inserting a poker to stir the coal. Above this grating is the common door for firing. The top of the furnace slopes in the length of the boiler, the fire-box being shallow at the back

sheet and deepest at the tube sheet. About midway on this slope, an opening is made through the crown of the fire-box, this opening being covered or exposed by a sliding cast-iron door. Around this opening, a hopper or curb is raised up—large enough to hold coal, perhaps, enough for once firing. A loose, swinging cover is placed on top of this curb. When running, the back doors of the fire-box are seldom opened, but this hopper is filled, and its contents then dumped (by withdrawing the sliding door) over the grate.

It will be remembered that the firemen's footboards are on the tender, and that there are two decks or landings, one over the other—from one of which the lower doors may be fed, and from the other of which the coal-hopper may be filled.

The ash pan has a tight bottom, so as to hold three or four inches of water, into which the slag and loose coals drop and are extinguished. In the smoke-box there is a variable exhaust. The chimney is straight, has no deflecting cone, and only a grating over its top. For all the other coal boilers named, the chimney is mostly of this kind.

Millholland's Boiler.—The fire-box, variable exhaust and chimney are estially like Winan's. There is, however, no coal-feeding hopper on the back of the fire-box, as the fire-boxes on these boilers are square, five feet each way. The peculiar feature of these boilers is the combustion chamber. This is a sort of smoke-box, placed within the boiler, surrounded by water, and about five feet from the fire-box tube sheet. One set of the tubes lead from the fire-box into this chamber, and another set lead from this to the smoke-box, there being thus two sets of tubes and four tube sheets. A square leg comes down from this combustion chamber, through the bottom of the boiler, there being a water space around this and a door on the bottom. Through this leg a man may get into the combustion chamber to set and caulk the flues. A few of the stay bolts in this leg are hollow, to admit air to complete the combustion of whatever gases have not been already burned over the grate.

O. W. Bayley's Boiler.—The novel feature is contained in the fire-box. This is divided into three chambers or compartments, a water space, four or five inches thick, passes from near the top of the back side of the fire-box, sloping downwards to below the tubes on the front side, thus dividing the fire-box into an upper and lower chamber. The lower part is again divided in its width by a fore-and-aft vertical water bridge, connecting at top with the water space above described. A square opening is made through the vertical water space, so as to open the two lower chambers into each other. Two openings are also made and covered by sliding doors, in the sloping water space above. The fire doors open, one each into the lower chambers.

The mode of working is this. Fire is first made on the grates on both sides, or in both of the lower chambers, and both of the sliding doors above are opened. After the coal gets well to burning and when fresh coal is applied, the fire-box is managed as follows: The left hand sliding door only, upon the sloping water space, is left opened. The right hand fire door, or feeding door is also opened, and coal applied to the right hand grate. The flame of this coal pass through into the left hand lower chamber, over the burning coal on that side, thence up through into the upper chamber and off to the tubes. The firing is then reversed by shutting the left hand sliding door and opening the right hand one. Coal is then put upon the left hand grate. The gas passes through into the right hand lower chamber, over the hot fire, up into the upper chamber and again off through the tubes. By this means, the coal becomes partly coked before it is finally burned, and the gases are probably quite entirely consumed.

Latta's Boiler.—A recent application of this boiler by the Boston Locomotive Works has attracted some attention. The furnace is a square chamber, seven or eight feet high and with a water space all around it. The water is contained in coils of tubeing. A length of iron pipe, say of two inches diameter, is laid across the furnace above the grate. This pipe has a return coupling on one end, and another length of pipe is brought back, and so on for a few courses in height. Then the return couplings divide or throw out each two return nozzles, thus doubling the area of tubing through which the steam and water circulate. After a few courses of these double tubes, the return couplings again divide and send back four lengths of tube, side by side, and all connected with the original tube. And after a few courses of these quadruple tubes, the couplings again divide and send back eight lengths of the tube with which number the pile is completed. As many separate and complete piles, or courses, of this kind, are laid up, as will occupy the whole width of the fire-box. These piles are connected at top and bottom with the water space of the furnace around them, and the heat of the fire circulates freely through them. The chimney surmounts the whole.

M. W. Baldwin & Co's. Boiler.—Perhaps no other form of boiler in successful use has been made to burn coal with so little change of form and structure from that of the common kind. The fire-box is five or six feet long, the back of the fire-box and fire door the same as for an ordinary wood-burner; the grate is stationary and of the common pattern, only heavier. The boiler has a variable exhaust and open chimney. About the only peculiar feature is a horizontal row of two-inch iron tubes running across the width of the furnace, just under the crown. These give an increase of heating surface and quicken the circulation of the water.

There are many other varieties of boilers now in experimental use, but we are not able to furnish as full particulars of them as we would wish. From those we have mentioned, leading ideas may be had of the forms of boilers already most prominently before the public.—*R. R. Record.*

AGRICULTURE OF MAINE.

THE "Preliminary Report" of the Secretary of the State Agricultural Society, Dr. Ezekiel Holmes, gives a statistical account of the Agricultural and Horticultural Societies in Maine. The Bangor *Courier* makes the following abstract:

It appears that the number of farms in Maine is 77,016—comprising 2,039,596 acres of improved land, and 2,515,797 acres of unimproved. The number of farms in New-Hampshire is but 47,408; in Vermont, 43,312; in Massachusetts, 55,082; Connecticut, 31,756; Rhode Island, 8,398.

In 1850 there were bred in Maine 41,721 horses, 133,556 milch cows, 83,933 working oxen, 125,890 other cattle, 451,577 sheep, and 54,588 swine—the aggregate value of which stock is about ten millions of dollars.

Of crops in that year, there were raised 296,259 bushels of wheat, (a little more than a quarter of what had been raised when not troubled with he weevil,) 101,916 bushels of rye, 1,750,056 bushels of corn, 218,107

bushels of oats, 1,364,034 pounds of wool, 205,521 bushels of peas and beans, 3,436,000 bushels of potatoes, 151,731 bushels of barley, 104,532 bushels of buckwheat.

The orchards produced a value of $342,865, as shown by the deficient returns of the census—the market gardens $122,387.

There were 9,243,811 pounds of butter made, and 2,434,454 pounds of cheese.

Of hay 755,889 tons were cut, and 18,000 bushels of different grass seeds raised.

There was also raised 40,000 pounds of hops, 18,000 pounds of flax, 580 bushels of flax seed, and 252 pounds of silk cocoons.

94,000 pounds of maple sugar, 3000 gallons of molasses, and 19,000 pounds of honey and beeswax manufactured.

The home manufactures were worth $500,000—and the value of slaughtered animals was more than $1,500,000.

The Bangor *Courier* says that the census returns give but an approximation of the total amount and value of their agricultural productions.

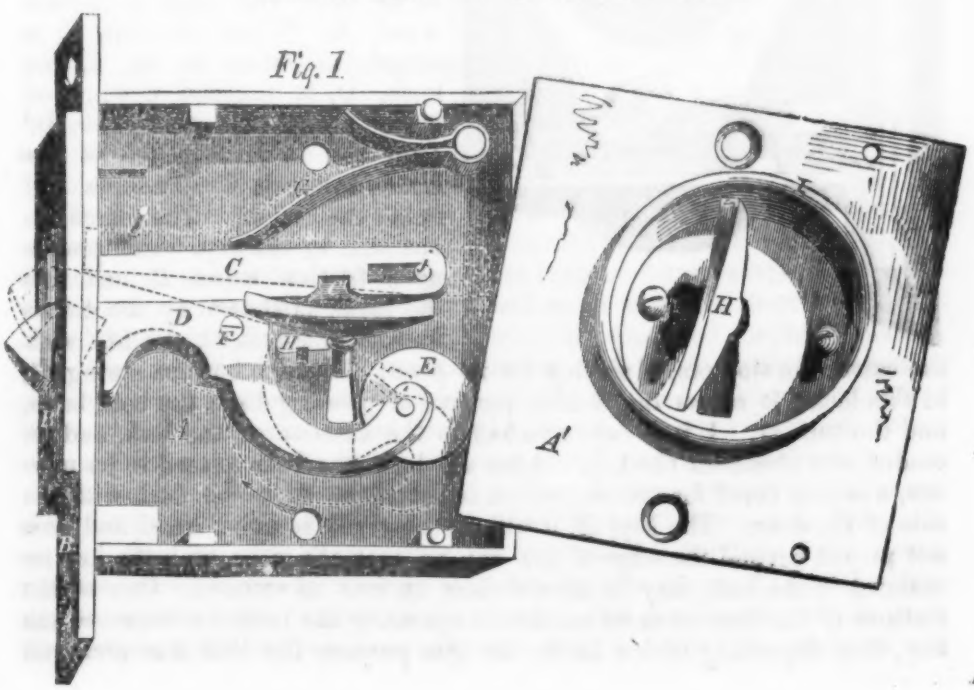
Of dairy products, the 133,556 milch cows produce an average of 69 pounds of butter to the cow. There are seven States which exceed this, viz.: Michigan, 70 pounds to a cow; New-Hampshire, 73; Connecticut, 75; Pennsylvania, 75; New-Jersey, 79; Vermont, 83; New-York, 85.

The amount of cheese made is 18 pounds to a cow—seven States do better—Connecticut taking the lead, at 62 pounds to a cow.

In the number of working oxen only four States in the Union go beyond Maine. These are: New-York, Virginia, Tennessee, and Missouri. "In the *quality* of cattle we challenge the Union."

IMPROVEMENT IN LATCHING LOCKS.

Fig. 1



THE accompanying engravings are illustrative of the improved Latching Lock patented in this country by Mr. Edmund Field, of Greenwich, Ct., July 3, 1855, and in Europe April, 1855.

In common door locks, the latch and locking bolt act independently, the latch serving for convenience by day, and the bolt and key for security by night.

The principal feature of novelty in the present invention consists in an ingenious method of combining the latch and lock, so that by the act of turning the key, the latch is made to unite its strength with the bolt, and thus increase the security of the lock; when the key is turned in the reverse direction, the latch assumes its ordinary uses. These, and other important advantages hereafter described, are obtained without any increase over the price of ordinary locks, and without complication of parts. They may be manufactured even at less cost than ordinary locks.

Fig. 2

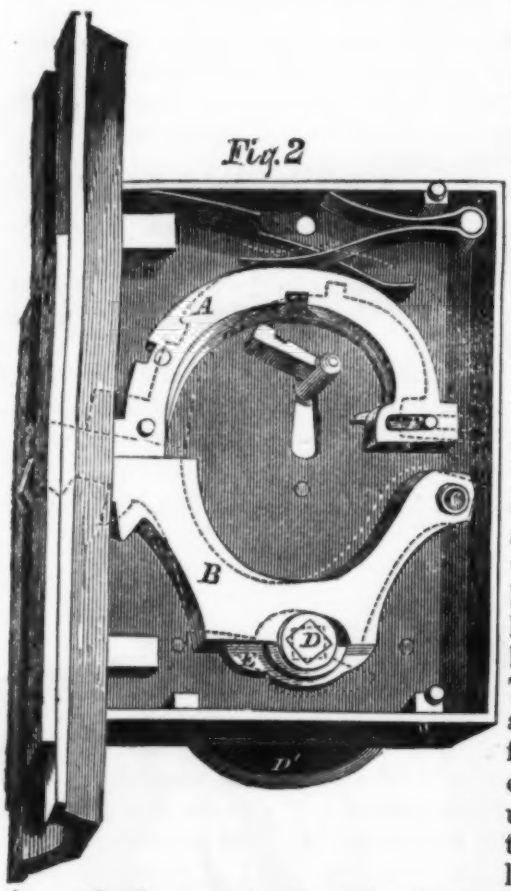


Fig. 1 shows a mortise lock, intended for use on the sliding doors of freight cars, ship doors, churches, banks, arsenals, windows, and wherever a strong, safe, and convenient fastening is wanted. A is the shell of the lock, which is made in the usual manner; A' is portion of the shell removed so as to exhibit the interior parts; B face plate by which the lock is fastened into the mortise; B' catch plate to be fastened to the jamb; C locking bolt which slides in and out in the usual manner; C' tumbler behind the locking bolt; D, latch pivoted at F, and furnished at its inner end with a friction wheel, E. When the bolt, C, is locked, as shown in fig. 1, the latch, D, is fastened down, and holds firmly in catch-piece, B.' Turn key H in direction of the arrow, and bolt C withdraws, and frees the latch. The latch is operated by the key, which presses upon friction wheel, E, and lifts the latch, as shown by the dotted lines, F; the bolt, C, also lifts with the catch, the stop pin, J, serving for its pivot. There is but one spring, G, in this lock; it serves the double purpose of pressing down the bolt, latch, and the tumber. I is a cup attached to the exterior of the lock, and intended as a shield for the key. After the lock has been placed in its mortise, a hole is bored for the cup, which is let in so as to be flush with the side of the door. The key, H, it will be observed is quite small, and does not project beyond the edge of the cup, so that the door, with the key remaining in the lock, may be shoved clear up into its recesses. One of the features of the improvement consists in operating the latch by means of the key, thus dispensing with a knob; for this purpose the lock is so arranged

that the key cannot drop or be taken out except when the locking bolt is thrust forward, and the latch fastened down; in other words the lock must be locked before the key can be removed.

Large heavy doors should always be made either to slide or roll, for they last longer, remain in good order, and afford better security than hinged doors; the latter will sag, sooner or later, and become inconvenient. For sliding and rolling doors of every kind, the lock we have described seems admirable adapted. The outer end of the latch is made with double shoulders, which affords additional strength.

Fig. 2 shows another form of lock, in which the same general principles are involved as those contained in the preceding device. The chief difference is that the bolt, A, and latch, B, are operated independently, although both combine, in the act of locking, to increase the security. The latch turns on the pivot, C, and is operated by the knob, D', the shaft of which D, and lifting piece, E, are arranged in the common manner. When the bolt is thrown back the latch becomes freed, and may be lifted by turning the knob, its position when thus raised being indicated by the dotted lines; it will be seen that the lock bolt also lifts with the catch, the pin, F, serving as its pivot. Two springs are used in this lock, one of which presses on the tumbler behind the bolt, the other acting on the bolt, and the bolt pressing down the forward end of the latch. Locks of this description are intended for parlor doors.

We have described the above locks as being specially adapted to the securing of sliding doors, but they may be also applied with equal facility to hinged doors of every description. The invention appears to be one of real utility, and calculated to supply a very general want. For further information address the inventor, Portchester Post-Office, N. Y.

GRAND BRONZE CASTING.

The Springfield *Republican* notices the colossal statue of Washington modelled by H. K. Brown, in process of casting at the great foundry of the "Ames Company" in Chicopee.

The successful termination of their work is now announced. It has been cast in fragments, and that one just finished is the largest and most difficult of the whole, namely, the entire body of the horse. As the preparation of the mould has required considerable time, and great care, and as many hazards attend the execution of such a work, the hour appointed for the trial was one of no small interest to the contractors and those employed upon it. About one hundred persons had gathered from the neighboring shops to witness the scene, wholly unprepared, however, for what followed. Soon after the hot metal began to flow into the mould, and in all directions.

The workmen who stood upon and around it were enveloped in a shower of liquid fire, which burned their hands and faces, and set fire to their garments, while the spectators fled in terror from the building. Mr. Ames, who was near by, ran in at this moment, and was so appalled at the sight that he wished to have the work abandoned. But the foreman of the shop, Mr. Langdon, anticipating some trouble, had agreed with his workmen not

to give up the object of their long endeavors if a desperate effort could save it. With courage that deserves great praise, they persevered and filled the mould, escaping with only slight injuries.

The contractors may well congratulate themselves over their work, for it is the first and only achievement of the kind made in this country, and perhaps nowhere else but in Munich, Bavaria, could so large a piece of bronze statuary be cast.

DESCRIPTION OF THE PERSIA.

THE following description of the new Cunard steamship Persia, whose arrival we announce elsewhere, is from the Liverpool *Courier*, and will be read with interest:

The dimensions of the ship are as follows:

Length between perpendiculars,	360 feet.
Length over all,	390 feet.
Breadth of hull,	45 feet.
Breadth over paddle-boxes,	71 feet.
Depth,	32 feet.
Gross tonnage,	3000 tons.
Space for engines,	1221 tons.

The Persia is rigged as a bark, (not ship rig, as stated in most of the papers,) and she will have sufficient spread of canvas to enable her to cross the Atlantic with her sails alone, should necessity require it, which may be judged of from the fact that her main yard is 76 feet long. The vessel sits very slightly on the water, and her symmetry is to be seen in the fact that she looks smaller than she really is when alone, her great proportions only appearing when taken in detail, or when compared with other standards. The Persia has an elliptical stern, neatly gilt, and a half-length female figure-head representing a Persian maiden, with musical instruments and other articles of female occupation. The paddle-boxes are slightly gilt, and in the center of each is a bold carving, representing a lion springing from between two palm trees.

The Persia is the first iron steamship built for the British and North American Royal Mail Steam packet company, her Majesty's government having hitherto required wooden vessels in case they should be wanted for war purposes.

The keel of the Persia is 13 inches deep and 4½ inches thick, scarfed in lengths of 35 feet, and a rabbit in the keel for the garboard streak to fay into. The sternpost is 13 inches broad and 5 inches thick. The rudder stock is 8 inches in diameter. The framing of the ship is of angle iron, placed nominally to the stem, at intervals of 18 inches from center to center midships, and 20 inches from center to center about five feet before and abaft the engine-room bulkhead. Amidships these ribs are 10 inches deep, with double angle iron riveted to each edge, so as to present in section the appearance of a letter H placed sideways, thus, ⊟. The Persia is divided into seven water-tight compartments; and a novelty has been introduced into her framing forward which, in the bow compartment, is laid diagonally, with

a view of bearing a collision, should it ever occur, in the strongest arrangement of the structure. The vessel is plated in and out alternately, in accordance with the present custom of building iron ships. The keel-plates are $1\frac{1}{16}$ of an inch in thickness; at the bottom of the ship the plates are $\frac{15}{16}$ of an inch in thickness; from this section to the load water-line they are $\frac{3}{4}$ of an inch; and above this they are $\frac{11}{16}$ of an inch in thickness. The plates round the gunwale are $\frac{7}{8}$ of an inch in thickness.

Everything that care and skill could devise to make the Persia a safe ship has been done by Mr. Napier. In the water-tight compartment, for example, provision has been made, much the same in principle as that adopted by Mr. J. Scott Russell's ship the Great Eastern, namely, the formation of a substantial double ship. The goods carried by the Persia are to be stowed in water-tight compartments, each about 72 feet long, 16 feet wide, and 20 feet deep, which form a species of tanks, sufficient in themselves to float a considerable weight.

The next point to consider is the motive power of the ship, which consists of two side-lever engines, which were constructed by Mr. Napier. We have no standard of computing engine power to which all will agree, hence there is a difference in expressing the power of a steamboat, which Mr. Napier thus applies to the Persia: "According to the strict Government rule of admeasurement her power is equal to that of 900 horses; according to the plan laid down in the Earl of Hardwick's bill, her power is equal to that of 1200 horses; and according to James Watt's old-established rule of 33,000 ft. lbs. to the horse, she is expected to work up to the pith of between 4000 and 5000 horses." As a standard, we adopt the Earl of Hardwick's bill. Let us look, however, at some of the dimensions of the Persia's engines, and other particulars, which are as follows:

Diameter of cylinders,	100 inches.
Length of stroke,	10 feet.
Diameter of paddle-wheels,	40 feet.
Length of floats,	10 feet.
Depths of floats,	3 feet.
Number of boilers,	8
Number of furnaces,	40
Pressure on boilers,	20 pounds.
Length of engine-room,	115 feet.
Breadth of engine-room,	45 feet.
Capacity of coal-bunkers,	1400 tons.
Estimate consumption of coal,	$4\frac{1}{2}$ tons per hour.

The boilers, which are tubular, are placed in two groups, fore and aft, and they are fired amidships. It may also be stated that the ship has been so planned that the weight borne will repose on lines parallel to the keel. The coal-bunkers are placed beyond the boilers, at each extremity of the engine-room. Each boiler has five furnaces, and they are so independent that any one of them can be shut off, should it not be required. In one particular the Persia differs from the Arabia, the steamer which came last on the line, namely, having smaller boilers, but a greater number of them, so as to enable the engineer to follow up the stroke of the engine with a longer pressure of steam. There are, besides, two donkey boilers and engines, for pumping the feed water into the boilers; and in connection with them are eight refrigerators for abstracting the waste heat from the brine as it is blown from the boilers, to heat the feed water.

Nothing can be conceived more striking than the working of the engines. The Scotch papers, in speaking of them, use the terms "wonder," "veneration," "awe" and, indeed, the sight is marvelous. There was a little noise from the engines on the trial trip, as it is usual on these occasions to work them loosely, but when they are screwed up, which they will be for sea, there will be no noise whatever beyond the low singing of the exhausted cylinders. Such ponderous machinery does not elsewhere exist, and to stand in the engine-room and look up at the mighty shafts, cranks, and rods, moving with silent, steady, and solemn, but powerful ease, is a sight which must attract even the most thoughtless observer, and produce respect for the intellect and practical skill of the men who produced them.

From the engine-room to the cabin is a short transition. Here are accommodations for 260 passengers, who will sleep in berths on one deck. There is a passage all round the ship below the main deck, so that no passenger will need to come on deck to get to or from his berth. On the same deck is an elegant cabin for gentlemen who desire to sit in the center of the ship, and adjoining it is the ladies' cabin, which is a gorgeous room, upholstered in a style fit for a queen, and adorned with choice paintings from the pencil of Mr. D. M'Calman, of Glasgow, whose groups of flowers also decorate the main saloon. This cabin is paneled with bird's eye maple, and it is heated by steam, as are also all other parts of the ship. The height between decks in this part of the ship is eight feet six inches, and the berths are amply lighted and ventilated. The berths are supplied with the usual conveniences; and it may be mentioned that there are no less than twenty water-closets in various parts of the lower deck. On the upper deck are the main and fore saloons, the officers berths, and other accommodations. At the extreme after-end of the ship is a large smoking-room, with cabins for the captain and chief officer, from which they can see the entire working of the ship. Next to these is the main saloon, which is 60 feet long, 20 feet wide, and 8 feet high. This saloon will dine about 170 persons. It is paneled in bird's-eye maple, with twisted pilasters, and neatly gilt frieze and ceiling. The upholstery is red velvet, with red satin window curtains, embroidered in gold. The panels are filled with floral paintings similar to the ladies cabin. Elegantly framed mirrors are placed at the fore end of the saloon, as in the other vessels of the line; but at the after-end a difference has been made by the introduction of two beautiful book-cases, and massive folding-doors which open into the smoking-room. The skylight is filled with stained glass, the prominent features being a Persian and a Persian woman, in their native costume. Forward of the saloon are the kitchen and pantry, each of which has an area of 300 feet; the floors of which are beautifully laid with tiles. The fore saloon, and the various store-rooms and officers' apartments, are also placed on the main deck; while the crew are accommodated in the topgallant forecastle.

We might enumerate the conveniences of the Persia to any extent, and speak of her baker's and her butcher's shops, her joiner's and carpenter's workshops, her surgery, ice-houses, lamp-houses, bath-room, and similar arrangements. But it is not necessary to dwell upon these points, as the Persia carries within herself appliances of comfort excelling the first hotels in the country, and she possesses saloons which have not unfitly been compared to the apartments of a baronial residence. But perhaps an allusion to one part of her outfit will be more striking than mere description. The Persia, fitted out on the same scale as the other vessels of the line, will require 400 counterpanes, 1200 blankets, 1600 sheets, 800 pillow-slips, 4600

towels, and 400 table-cloths; all of which, or nearly so, would come into requisition on a current voyage.

The summit of the saloons and officers messrooms forms a hurricane deck, well railed, on which there is an uninterrupted promenade 370 feet in length, and of proportionate width. This deck will form the passengers' promenade, and it will be very seldom that it cannot be used as a dry and comfortable place for walking.

The Persia has two sets of double-steering wheels, so that she can be steered either aft or amidships, as circumstances may require.

The crew of the ship will be made up as follows:

Engineers Department—Engineers, 8; firemen, 54.

Stewards Department—Cooks, 8, stewards, 36.

Sailing Department—Officers, 6; able-bodied seamen, 54; doctor, 1; purser, 1; carpenter 1; joiner, 1. Total, 170.

The Persia will accommodate 260 passengers, and carry 1200 tons of measurement goods, and 1400 tons of coal, at a draft of 22 feet, the weight of herself, cargo, and stores being then 5400 tons.

SPEED OF THE PERSIA ON HER TRIAL TRIP.

The distances run by the ship on her trial trip from Greenock to Liverpool were as follows:

	Knots.
From Cloch Lighthouse to Ailsa Craig,	43
to Corseill Point,	15
to Mull of Galloway,	27
to Point of Ayre,	22
to Bell Buoy,	68
Total,	175

which is equal to 203 statute miles, so that the vessel steamed 16 knots, or 19 statute miles per hour, which was the actual speed through the water. It might be supposed that this high rate of speed would have been dangerous, but engineers will understand how distant that fear was when we state that the preparation of tallow and white lead usually put on the bright work of the engines of sea-going steamers was as hard at the end of the voyage as at the beginning. The slightest heating of the engines would have instantly melted it away wherever it was near a bearing.

The Cunard Line, as it is popularly designated, commenced operations in 1840, with the view of connecting the Eastern and Western hemispheres by the periodical sailings of steamers. The first vessel dispatched was the Unicorn, Capt. Douglas, which sailed from Liverpool on the 16th May, 1840, as a pioneer, for Halifax and Boston, with 25 passengers. The Unicorn was a comparatively small steamer, and when she got out she was placed on the line from Picton to Quebec, as an auxiliary steamer.

The Britannia was the first steamer built for the ocean line, and she was dispatched on the 4th July, 1840, for the same ports, to which she carried 63 passengers.

Substantially, this Company has enlarged the size and power of its steamers six times since the Unicorn went out, as follows:

First, the Britannia, Acadia, Caledonia, Columbia.

Second, the Hibernia, Cambria.

Third, the America, Europa, Niagara, Canada.

Fourth, the Asia, Africa.

Fifth, La Plata, Arabia.

Sixth, the Persia.

These vessels may be classified thus:

The four first of 1200 tons and 440 horse power each.

The Hibernia and Cambria, of 1500 tons and 600 horse power each.

The America, and the vessels named with her, 1840 tons and 700 horse power each.

The Asia and Africa, 2250 tons, and 800 horse power each.

La Plata and Arabia, 2,203 tons and 1000 horse power each.

The Persia, 3600 tons and 1200 horse power.

But perhaps the clearest way of putting the size of this vessel is to compare her side by side with other vessels of the line in length, power and tonnage, and to include in the same comparison some other well known steamers.

	Length. Feet.	Register. Tons.	Nom'l power. Horses.
Britannia,	200	1200	400
Cambria,	217	1500	600
America,	250	1840	700
Asia,	300	2250	800
Arabia,	320	2393	1000
Persia,	390	3600	1200
Atlantic, (Collins line,)	287	2280	800
Great Britain,	330	3500	500
Himalaya,	350	3500	700

Of the above ships, the Britannia, the Acadia, the Caledonia, and Hibernia were sold a few years ago—some of them going into the hands of the Spanish Government, where they still remain. The Columbia was lost in July, 1843. The La Plata was sold to replace the ill-fated Amazon, which was burned three or four years ago on the Spanish coast.

English Patents.

Improvement in Files. By Hiram Powers, sculptor, Florence.—This invention consists in forming perforations or throats to the fin-feather or other cutting surfaces of rasps or files, for the purpose of enabling them to clear themselves of the material cut away by them, and to prevent their filling or choking, or allowing the particles to pass through the perforations or throats.

The improved rasp or file resembles somewhat the ordinary grater in appearance, though entirely different in its operation and effect.

The perforations in the plate of which the instrument is formed, may be round oblong, oval, or angular; and the cutting-edges which partially surround each perforation or throat, may be either curved, straight, or pointed, plain or serrated, as the different purposes to which it is to be applied may require. The cutting-edges do not entirely surround the perforations, but are raised on one side of them only, and are inclined at such an angle as to cut to the best advantage, and at the same time to throw the particles removed by them into and through the perforations or throats.

The files or rasps may have cutting-edges raised on one or both edges, as may be found best, and they may be made of any desired form—whether flat, curved, angular, or hollow; or they may be made in rods or bands, and applied to cylinders or wheels, and in these various forms may be employed for reducing fruit and roots to pulp or dust; and also for reducing the surfaces of wood, stone, ivory, bone, metals, and other substances, and generally for all purposes where the comminution of substances is required.

As the form of cutting-edges, and their position relative to the perforations or throats, which allow the particles to escape and pass through or by the body of the instrument, render filling and clogging almost impossible; this file can be used upon lead, zinc, copper, and tin, or other adhesive substances, as well as upon the harder metals, the perforations serving the same purpose that the throat of a common hand-plane serves in cleaning the file from the shavings removed by it.

Improvements in giving Signals on Railways by Electricity, and in Instruments and Apparatus Connected Therewith. By Edward Tyer, Dalston.—The first part of this invention relates to improvements in apparatus which are to be so fixed at any required point upon a railway that the wheels of an engine or train, or other moving body, passing over such apparatus, shall impart motion to certain instruments called "connectors," whereby electric currents or circuits are closed, broken, reversed, or coupled up, which electric currents actuating or operating upon other electro-magnetic instruments (included in the same circuit) shall serve to point out, register, or otherwise record the position of any engine or train that may be passing or has passed over such apparatus.

In order to transmit signals from one part of the line to any other part, it will be necessary to place suitable instruments (in conjunction with the spring lever) in such a position, that whenever a downward motion is given to it by the wheels of a moving engine or train, such motion shall be imparted to the instrument in connection therewith, and the electric current will thereby be set in motion.

The current from the voltaic battery can at once pass along the wires, which being in connection with one or more electro-magnetic indicating instruments, fixed at one or more distant stations upon the railway, signals can be transmitted from the place where this apparatus is fixed, to the distant instruments in connection, and thereby indicate the passage of a train over the place where this connector and spring lever is fixed.

In order to prevent any stones, dirt, or mud from interfering with the correct action of this form of connector, the whole may be inclosed in a suitable case provided with a stuffing box for the axle of the lever to pass through.

Another method of closing, breaking, or coupling up electric circuits or currents, which can be sometimes used with considerable advantage, is to place a small elastic bag, partially filled with mercury, under the spring lever before described; a tube, closed at one end, and having one or more wires passing into this closed end, is caused to dip into the mercury contained in the elastic bag; the whole is then rendered air tight with cement or by any other suitable means; and the wires, so entering the tube, form part of the electric circuit. The use and action of this instrument is as follows: So long as the lever fixed in close proximity to the rail remains in a quiescent position, the mercury in the lower part of the elastic bag does not come into metallic contact with the wires in the upper part of the tube; but whenever the spring lever is depressed, the air in the bag forces the mercury up the

tube, which, coming into contact with the wires at the upper end, immediately completes the circuit, and the required signal is given to the distant station. By combining one or more of these tubes in the same bag, or by using any number of bags and tubes, any arrangement of connector can be constructed, as the nature of the case may require, in order to close, break, reserve, or couple up electric circuits or currents. Instead of having the tube closed at one end it is preferred to have a bulb or cylinder at the upper end, so as to receive any superfluous amount of the compressed air.

The second part of the invention relates to the adjustment of connectors with one or more of the rails of a railway in any required part thereof, in such a manner that the weight of a passing engine or train, in causing a small deflection of the rail from its natural position, shall bring the connector into action.

The third part of this invention consists in the application of magneto-electric machines in combination with the before-described spring levers, in such a manner that whenever the wheels of an engine or train pass over any of these contrivances, the downward motion imparted thereto shall be rendered available to set in motion the coils of a magneto-electric machine; and, as is well known, during the brief period such coils are in motion, currents of electricity are induced in those coils, which electricity, by suitable insulated conducting wires, may be transmitted to any required point or place, and if there are any electro-magnetic instruments included in the same circuit that this induced electricty is traversing, such instruments will be operated upon or set in motion, and any required signal can be given.

The fourth part of the invention relates to certain improvements in the electro-magnetic instruments termed "indicators," which are for the purpose of indicating the position of an engine or train upon any part of the line.

The pointer is caused to assume one of two distinct positions, for the purpose of indicating two distinct signals; and the pointer having assumed one of such two positions, remains fixed there until operated upon a second time by another electric current. The improvement consists in thus obtaining two distinct and permanent beats or deflections of the pointer, and differs from the plans usually employed for giving or receiving signals, inasmuch as that in the latter case the magnetic pointer is generally made to assume a vertical position, and the deflections, either to the right or to the left, are caused by the influence of electric currents passing in close proximity to such magnetic needle of the telegraphic instruments; but so soon as the electric current ceases to flow, then the needle or magnet again returns to its vertical position, and points to zero. Now this kind of instrument is not applicable to the plans adopted, and which have been previously described, for closing, breaking, or coupling up the electric current, because it will at once be manifest that during the rapid passage of the wheels of a train over the connector and spring lever, the vibrations of a magnetic pointer, if placed in a vertical position, would be too rapid and uncertain, and, not being permanent, they might, during the instant they were taking place, escape the attention of the signal man in charge. In order to obviate those difficulties, the patentee constructs the magnetic needles or pointers of his instruments so that their centers of suspension are below their centers of gravity; consequently, if suitable stops are placed for the needles to rest against, the needles will always remain against either of these stops, and never point to the vertical, and a permanent deflection will be obtained.

The fifth part of the invention consists of improvements in the arrange-

ments of electro-magnetic apparatus, for the purpose of calling into action local batteries; the object being to enable any great resistance to be overcome, and also to perform any electro-magnetic effect that requires considerable force. It is well known that a current of electricity in passing along a wire of any great length, has to overcome the resistance offered by such wire, and the electro motive force actually available is very much weakened thereby, and in some cases is not sufficient to accomplish the desired amount of work. Now, in order to obviate these difficulties, it has been the practice to use various arrangements of apparatus to call into action local batteries, and thereby to obtain any amount of electro-magnetic force that may be desired. It sometimes happens that in giving signals on railways by the instruments and connectors before described, a local battery is found very advantageous.

The sixth part of the invention relates to improvements in those instruments used for the purpose of reversing or changing the direction of electrical currents, and termed "pole-changers" or "commutators." They are used for giving signals on railways, in order to transmit a signal to an approaching engine or train from any part of the railway; so that whenever the train arrives at certain points upon the line where an apparatus, hereinafter to be described, is fixed, the electrical current being turned on (or reversed in direction, as the case may require), such engine or train shall receive the signal from these pole changers or reversers.

The seventh part of the invention relates to improvements in giving signals from any point or place upon a railway to an engine or train in motion, and *vice versa*, from an engine or train in motion to any other point or place upon the railway. This is accomplished by fixing upon the line, at any required distances, metal bars, having inclined planes at each end, so adjusted that if two springs or other levers be placed in an inverted position upon an engine or carriage, the levers will, on the engine or carriage coming up to the points where these metal bars are fixed, strike the lower end of the inclined planes of the metal bars, and, gliding up them, form metallic contact with such bars; and these being in communication with a voltaic battery, the electric current will have a tendency to pass from the bars to the metal spring levers fixed upon the engine or carriage; and if an insulated wire were carried from the spring levers to any electro-magnetic instrument, likewise fixed upon the engine or carriage, such instrument would be operated upon by the electricity flowing from the bars in communication with the voltaic battery, and every time the engine or carriage glided over these metal bars, a signal could be given to and received from an engine or carriage and a station, or the *vice versa*.

The eighth part of the invention relates to improvements in electro-magnetic instruments, to be fixed upon a locomotive engine, either to sound a whistle or to turn the "regulator" of such locomotive, and bring the train to a standstill.

IMPROVEMENTS IN ELECTRIC TELEGRAPH INSTRUMENTS. By JOHN SANDYS, St. Luke's.—This invention consists in a peculiar combination of parts into an instrument suitable for communicating by electricity. For this purpose a curved or bent magnetic needle is used, which moves on a suitable axis. This needle is hung on its axis in such manner as to bring its poles on either side of the end or one pole of the soft metal interior of an electro-magnet; hence, when a current of electricity is passed in one or other direction, the poles of the magnetic needle will be attracted or repelled accordingly, and the pointer fixed to the axis will be moved in one or other direction. The

magnetic needle has a projection, which, by stops, prevents the magnetic needles being moved too far in either direction. It is preferred, in constructing the electro-magnet, that the soft metal interior should be composed of a bundle or cluster of soft wires in place of a solid piece of soft metal.

A Mode of Transmitting Telegraphic Messages across bodies of Water. By James Bowman Lindsay, Dundee.—This invention consists in a mode of transmitting telegraphic messages or communications, by means of electricity or magnetism, through and across water, without submarine cables, water being made available as the connecting and conducting medium for the electric fluid.

On the shore from which a message is to be sent, a battery and telegraph are set up, to which are attached two or more wires terminating in metal balls, tubes, or plates placed in the water, or in moist ground adjacent to the water, at a certain distance apart, according to the width of the water across which the message is to be transmitted, (the distance between the two balls, plates, or tubes connected with one battery, to be greater than across the water, or to the balls, plates, or tubes of the opposite battery when practicable). At the opposite side of the water, or that to which the message is to be conveyed, two other similar metal balls, plates, or tubes are placed, the same being either immersed in the water or in the earth, as above stated. These balls, tubes, or plates have wires also attached to them, which lead to and are in connection with another similar battery, with which the needle or other suitable indicator or telegraphic instrument is put into connection, and messages are then transmitted in the usual way.

As regards the power or primary agent employed for transmitting telegraphic messages, the patentee remarks that it may be either voltaic, galvanic, or magnetic electricity, and the battery for evolving the same such as is used for telegraphic purposes. And with respect to the telegraph or instrument for transmitting messages, he proposes to employ any of the instruments in known use which are most efficient for that purpose, observing that the needle or indicator may be arranged or disposed in the instrument, either in a vertical or in a horizontal position, and the coil of wire necessary to the movement of the needle may also be increased or diminished, according to circumstances.

In any suitable part of the course of the wire or wires, a coil of wire is arranged in connection with the needle or indicator of the telegraph, as a medium of communication between the needle or indicator and the battery, in the manner usually practised.

The patentee remarks that he does not confine himself to the use of plates or balls of metal immersed in the water, as the same result may be obtained by inserting metal, charcoal, or other suitable terminal poles in the earth, communicating with the water by the moisture which the earth contains. It is important also, to the proper performance of the above mode of transmitting messages, that the distance between the terminal poles on one side of the water be greater than the distance between the plates or other terminators situated respectively on opposite sides of the water, otherwise the circuit will not be complete, and the current will therefore fail to operate upon the needle of the receiving telegraph.

Improvements in the Arrangement of Electric Telegraphs. By John Henry Johnson, Lincoln's-inn-fields.—This invention relates to the construction of portable electric telegraph apparatus, which may be placed

in connection, when desired, with any part of the line wires of a railway telegraph, or employed in mines, manufactories, private houses, public or government offices, and colleges. The improvements consist in so arranging the whole of the apparatus necessary for receiving and transmitting intelligence, that it may be contained in a box or case, which may be carried about with facility.

Without confining himself to details, the following is the arrangement preferred by the inventor: A battery of eighteen or more elements is contained in the bottom of a shallow mahogany or other box, fitted with suitable handles, for the facility of transport. On the top of this box is fixed a small wooden case, opening by a hinge-joint, containing an alarum, manipulator, and receiver. The hinged portion of this case, which opens back, contains a nautical compass, two coils of wire, and a lightning conductor. The battery, which is of sulphate of copper, is (for the purpose of transport) necessarily of a different construction to the ordinary batteries.

In place of using water in a liquid state, sand, moistened with water for the zinc, and with sulphate of copper for the porous cells, is employed. When the apparatus is required for use, the hinged cover is turned back, and the operator attaches the end of the wire from one of the two coils to a rod or chain, which is then suspended from, or otherwise connected to, the line wires of a railway or other telegraph. The circuit is then established by connecting the wire of the second coil or bobbin to a conductor (either wire or earth). The operator then works the handle of the manipulator, bringing it over a contact point, and observes, from the deviation of the magnetic needle in the compass, whether the current is passing; whereupon he may transmit and receive messages to or from any desired station on the line with as great certainty and facility as by the fixed apparatus at present in use.

Improved Implement for Digging Turnips, etc. By Wm. Lister, near Richmond.—This invention relates to a novel construction of implement which will facilitate the operation of removing turnips and other bulbous roots from the ground in which they are growing. For this purpose the patentee mounts in a suitable frame (which runs on wheels and is drawn by animal power) adjustable blades, which will enter the ground and make a horizontal cut therein, somewhat below the bulb of the turnips, thereby removing the tails of the turnips, and loosening their hold in the ground.

In operating with this implement, the blades are caused to enter the ground at a depth that will just clear the bulb of the turnip; and this level is retained as nearly as possible during the operation of tailing. The action o the implement will be not only to cut off the tails, but also to raise the bulb slightly out of the ground, and render it unnecessary for the laborer to use any great muscular exertion in gathering up the turnips. It will be understood that this implement may be applied to facilitate the gathering up of mangold-wurzel and other roots, if thought desirable.

The patentee claims the construction of implement as above described, which, although possessing some of the characteristics of the horse hoe, is capable of performing work essentially different from that for which it is designed.

Miscellaneous.

TO THE FRIENDS OF COL. J. S. SKINNER.

THE SKINNER MONUMENT.—Our readers will remember one or two occasions in which the plan of a monument to Mr. Skinner and a fund for his widow, has been laid before them, and appeals made on behalf of the object. Circulars were also sent to a large number of individuals, requesting donations. This was done at a season when the finances of the country were in a most embarrassed condition, and perhaps this is the reason why the call was so coldly received. We should be exceedingly sorry to believe that there were not thousands of his personal friends and others who were familiar with his valuable services in behalf of the industry of this country, who would freely give their five dollars each in behalf of such a cause. But the efforts hitherto made reveal a sad deficiency, the whole amount received scarcely exceeding the expenses incident to the effort; and those, with a half score of exceptions, are only donations of two dollars, which payment was offset by a three dollar publication. We are intending to make a renewed effort the present season, and hope the readers of this journal and others who will be addressed in another form will respond without delay, and the effort prove in a good degree successful. There will be very little expended hereafter in any preparatory operations, so that the donations made will *tell* in the nett results, almost to the entire amount of the sums received. Please send in your donations to this office.

PORTMONNAIES, RETICULES, ETC., ETC.—We have recently visited the establishment of our friends, Messrs. Zurn & Rantfle, and have been exceedingly pleased with the excellent style of their manufactures. They have a sales-room at No. 60 Nassau street, where a good assortment of the finest style of goods in this line—pocket-books, portmonnaies, dressing-cases, etc., etc., are constantly on hand, and at reasonable prices. Their manufactory is in an upper story, and is extensive and convenient. We do not hesitate to commend these gentlemen to our friends as quite worthy of their confidence, and assure them they will have no occasion to be disappointed by ordering anything which they manufacture. We shall be happy to act for them in these matters if they will send to us. They took the premium at the World's Fair.

A NEW EXPANSIVE VALVE MOTION.—The London *Railway Gazette* speaks of a new Expansive Valve Motion for Steam Engines, described at the Institution of Mechanical Engineers, by G. M. Miller, of Dublin. In this motion a single eccentric only is used on the driving axle; this works the rod of one of the valves direct, and the rod of the second valve is worked by the eccentric through the intervention of a loose ring on the driving axle, having two arms projecting at right angles to each other, to one of which the second valve-rod is attached, the other arm being connected with the eccentric. By this means a similar motion is given to both valves, but corresponding to the relative positions of the two cranks at right angles to each other. The eccentric is molded upon a transverse slide, which is capable of being moved backwards and forwards across the axle by means of a handle, answering to the ordinary reversing handle or lever, and acting

through the medium of a pair of racks and pinions. By moving the transverse slides the throw of the eccentric is altered or reversed, thereby enabling the engine to be worked expansively or reversed. A model of the new motion was exhibited, showing it as applied to a locomotive engine; and the particulars were given of the successful working of the new motion in two engines upon the Great Southern and Western Railway of Ireland.

MANNA SUGAR.—The following interesting letter was handed over to the Commissioner of Patents by Dr. Bernhisel. It is from Mr. Aaron Daniels, who resides in Provo City, Utah Territory, and is dated August 11, 1855:

"According to agreement, I send you a small cake of the sugar made from the syrup or honey found on cotton-wood trees, and, as you requested, will give you a few particulars concerning the manner in which I discovered it. As I passed along to and from my corn-field, (which is situated about one mile from town,) I discovered a white substance on the cotton-wood trees, which, upon examination, I found to be a sweet substance, somewhat resembling the honey-dew in the States, but in far greater abundance, and possessing other properties, some of the cakes being as thick as a knife-blade or window-glass. I thought, from the quantity there was on the trees, that sugar might be made of it, and signified the same to a number of my neighbors, who all ridiculed the idea; so I thought I would try and see what I could do with it. I took home two bushels, and washed the twigs, and then strained and boiled down the water, which made one and a quarter pound of sugar. Since that time most of the town have been at work. Some families have made as high as one hundred pounds of sugar. It makes excellent molasses, and as good vinegar as I ever saw. I averaged about eighteen pounds per day with two three-gallon kettles."

Although the quantity of sugar made from this syrup is small, yet we are assured that it is still profitable, from the fact that sugar in that region of country is worth *forty cents* a pound.—*Union.*

PAPER BAG MANUFACTORY.—In Beach street, above Hanover, (Eighteenth Ward,) Messrs. Lewars & Corbon have successfully commenced the manufacture of paper bags, for druggists, grocers, bakers, confectioners, and other dealers, with machinery driven by steam. There are six machines now in operation, which produce an average of 60,000 bags per day, of sizes to contain quantities varying from one to twenty-five pounds. There is an apparatus also for spooling and cutting the paper the required width, and a press for cutting the bags after they are manufactured. After this process of spooling, the paper is taken to the machine, which cuts the paper in the shape desired, folds it, applies the paste, and turns the edges required to be pasted, and then passes off the bags, on tapes and rollers, into a drying room, in which steam pipes are introduced. Through this the bags are conducted by continuous tapes and rollers over a surface of about fifty feet, and when thrown ot on piles, the bags are dry and ready for packing. The firm now employs eighteen hands, and use nearly one and a half tons of paper per week. The manufactory is a great curiosity to persons who have never seen the operation of making bags by steam.—*Phila. Ledger.*

SALT MANUFACTURE of 1855.—The Superintendent of the Onondaga Salt Springs, V. W. Smith, Esq., has communicated his annual report to the Legislature.

From the report we learn that the total amount of revenue the past year

is $61,065 59, and the total expenses same year, $50,198 13; showing the net revenue for 1855 to be, $10,867 46. The whole amount of salt inspected during the year is 6,082,885 bushels.

The quantity of salt inspected in 1855, exceeds the inspection of 1854, by 279,538 bushels. This, says the report, is less than may have been anticipated, but the deficiency will be found in the item of coarse salt. The increase in fine salt for the year 1855 is 515,888 bushels over 1854. Had the coarse salt works yielded an ordinary return, the increase in the manufacture for 1855 would have exceeded 500,000 bushels.

The production for 1856 is estimated at 6,800,000 bushels; and within a period of five years it is believed the manufacture will be extended to 10,000,000 bushels.—*Syracuse Journal.*

Baltimore—Wholesale Watches and Jewelers.—Baltimore since 1833 has been celebrated for this branch of the wholesale trade. It was during that year that the Messrs. Canfield, Bro. & Co., No. 229 Baltimore street, established their firm. Since that time they have been engaged almost exclusively in the Southern and Western trade. They import extensively of watches, diamonds, pearls and other precious stones; jewelry, fancy goods, bronzes, clocks—and manufacturers of silver-ware and jewelry. We believe their stock of goods are unequalled in the United States. One of the partners residing in Europe gives them advantages over most other houses engaged in the same business. Their reputation for manufacturing elegant silver-ware is well known throughout the country. We understand that the sales of watches alone in this establishment exceeds $175,000 per annum.—*Cotton Plant.*

Sligo Marble Manufacturing Company.—This is the style of another Company that has commenced operations at their quarry, two miles east of Knoxville. The Company, we understand, is organized with a capital of $200,000, and it is their purpose to seek the Northern and Eastern markets with their marble, and to direct the attention of the people in those sections to the marble of East Tennessee, which, for ornamental purposes, without doubt surpasses that of any other portion of the Union. The management of the Sligo Company is in the hands of Mr. James Sloan, of Nashville, who is a practical man, and has much experience in the working of marble. We trust other companies of the same kind may be attracted to this region, and that they will succeed in giving to East Tennessee marble, what it deserves, the character of a staple.—*Knoxville Register.*

Mineral Wealth of England.—The following is the estimate of the London *Mining Journal* of the mineral wealth of England for the current year:

Coals at pits,	£23,000,000
Iron ore,	3,000,000
Copper ore,	1,300,000
Lead ore,	1,500,000
Tin ore,	700,000
Silver,	200,000
Zinc ores,	15,000
Salt, earth, sulphur, building stones, etc.,	8,000,000
Total,	£32,715,000

THE PAPER PLANT IN WISCONSIN.—Under this head (says the Boston *Post*) we have before us a description of a plant discovered in this country by Mrs. A. L. Beaumont, of Arena. She has furnished us with a fine sample of cotton, and also of flax, from the same plant which she describes as follows:

"I discovered, two years ago, a plant that yields both cotton and flax from the same root, and believe I am the first person that ever cultivated, spun, or knit from it. I am persuaded that any article that will make as good cloth as can be made from this plant will make good paper; hence I call it the paper plant. It can be planted in the spring, and cut in the fall or winter. It bleaches itself white as it stands, and will yield at least three or four tons to the acre. From a single root that I transplanted last spring, there grew twenty large stalks, with three hundred and five pods, (containing the cotton,) with at least sixty seeds in each. From this root I obtained seven ounces of pure cotton and over half a pound of flax. It is a very heavy plant, and grows from six to seven feet high."

NEW BOOKS.

THE WORKS OF CHARLES LAMB; WITH A SKETCH OF HIS LIFE AND FINAL MEMORIALS. By SIR THOS. NOON TALFOURD, one of his executors. In two volumes. New-York: Harper & Brothers. 1855. 12mo, 555 and 611 pages.

Charles Lamb needs no introduction to the readers of *The Plough, the Loom, and the Anvil.* His peculiarities and his abilities are equally familiar to them. They know him as a man of wonderful genius, and one of the most pleasing of the writers of recent times. With the announcement of a new edition of his works it is therefore only necessary to say that these volumes contain a biographical sketch, his published letters to Coleridge, Southey, Wordsworth, Field, Manning, Wilson, Barton, Hazlitt, etc., his controversy with Southey, and final memorials.

The second volume contains the Essays of Elia, Rosamund Gray, Recollections of Christ Hospital, Essays on Shakspeare, and cotemporaries, and on Fuller, Hogarth, and Geo. Wither, sundry letters, poems, sonnets, blank verse, album verses, etc.

The volumes are well printed, and would form a valuable addition to any library.

A JOURNEY IN THE SEA-BOARD SLAVE STATES; WITH REMARKS ON THEIR ECONOMY. By FREDERICK LAW OLMSTED, author of "Walks and Talks of an American Farmer in England." New-York: Dix & Edwards. 1856. 723 pages, 12mo.

Mr. Olmsted is well able to criticise the agricultural usages of any country. His former volumes contain abundant evidence of this. He is also a very pleasant writer. He knows how to tell a story, and is excellent in descriptions. In this volume he has little compassion for the victims whom he condemns, though he commends many farms and plantations as models of their kind. There is, however, no mistaking his disapproval of slavery, though he exhibits an unusual amount of candor and coolness in his remarks on that subject. He seems to act upon the motto which he cites from Macaulay, that "Men are never so likely to settle a question rightly as when they discuss it freely." The volume comprises what he saw and heard "during the first three of fourteen months' travel in the Slave States." He says many very pleasant things of the persons he saw, of incidents in his experience, and scenes which he met with.

He says in his preface, "As a democrat he went to study the South, its institutions and its people; more than ever a democrat, he has returned from this labor and written the pages which follow." He visited Virginia, North Carolina, South Carolina, Georgia, Alabama, and Louisiana.

LETTERS FROM THE UNITED STATES, CUBA AND CANADA. By the HON. AMELIA M. MURRAY. Two vols. complete in one. New-York: G. P. Putnam & Co., 321 Broadway. 1856. 12mo, 402 pages.

Miss Murray has written a very peculiar book. It might be supposed to be her private diary, intended to remind herself years to come of incidents, novel or amusing, but too unimportant to be retained in the memory. All her movements are set down with remarkable minuteness. The character of our hotels is too important to a traveler to be overlooked, and her favorable judgment, as at Cleveland, Ohio, in the Weddell House, where she says "the accommodation is excellent," is, comparatively, quite worthy of note. Our railroads are sometimes commended, but at Dover, N.H., she "entered a branch railroad" which "was very slow, as it stopped at several stations for mercantile purposes." Of the people she says, "My impression of the American people has been hitherto more favorable than I expected," and yet she says further on, "Only the fear of starvation would induce a English man or woman to fix themselves for life in America." Miss Murray is a zealous, possibly a good botanist, and her reader is made acquainted with the localities of many plants, most of which are very common, although when she speaks of "Hemlock Spruce," as she does repeatedly, she certainly departs from the system of such botanists as we are familiar with. The book is written quite too carelessly, as may be discovered in passages already cited, and also where she says, failing to receive expected letters, "This is very disappointing;" and again, in her visit to the Supreme Court, "A counsel spoke," etc. Such errors abound. But this book adds one amusing volume to that kind of light literature which, though ever so unintellectual, is much in demand.

FAMILIAR SCIENCE; or, the Scientific Explanation of the principles of Natural and Physical Science, and their practical and familiar applications to the employments and necessities of common Life. Illustrated with upwards of one hundred and sixty engravings. By DAVID A. WELLS. Philadelphia: Childs & Peterson. 1856.

Mr. Wells is a writer of peculiar merit. He is not only a man of science, but what is quite as important, he well knows the wants of the people, and prepares his publications accordingly. His illustrations and demonstrations are simple and lucid. This volume is a fit companion of his previous publications, either of which would do much to establish a good reputation in the departments of science which he has exhibited. The volume before us contains treatises on all the sciences usually denominated "physical or natural," with chapters on the Philosphy of Manufactures, Agricultural and Rural Economy, Geology and Mineralogy. It also gives some explanations of the arts, as weaving, etc.

EDITH; OR, THE QUAKER'S DAUGHTER. A Tale of Puritan Times. By one of the descendants. New-York: Mason & Brothers; 1856. 12mo, 407 pages.

This story is finely written, and is full of interest. The sympathies of the reader are constantly awake during the progress of the narrative, and the result is pleasing. Many touching scenes are scattered through the volume. In respect to its literary merits this volume is a specimen of the best and of the highest style of its class. As a matter of history we should have many things to say. The Quakers of those times too closely resembled the Abby Folsoms of the present day in their factious opposition to all government, to receive the unqualified sympathies of candid minds.

LE BON TON.—Journal des Modes and Monthly Report of London, Paris, and New-York Fashions. S. T. Taylor, 407 Broadway.

The subject of fashions perhaps belongs in the list of topics appropriate to our journal, but it is one in which we should not claim to speak *ex cathedra*. But those ladies in whom we have entire confidence pronounce this to be *the* work in that department. The fashion plates are engraved and colored in Paris, the description of the fashions, also, is written there, and the numbers throughout are brought out in most excellent style, unsurpassed, if equalled elsewhere. Monthly terms, $5 a year. We will forward specimen numbers, *if to be had*, on receiving the price and a postage stamp. The editions are sold rapidly, and circulated extensively.

THE MORMONS AT HOME. With some Incidents of Travel from Missouri to California, 1852–53, in a series of letters. By Mrs. B. G. FERRIS, wife of the late U. S. Secretary for Utah. New-York: Dix & Brothers. 1856. 12mo, 299 pages.

Mrs. Ferris accompanied her husband, like a faithful and fond wife, to the territory of Utah, and passed the winter there, returning by the way of California. She has here given a description of what she saw and learned. Most of it has appeared in Putnam's Magazine, but it is well worth this form of issue, for it gives what we doubt not deserves entire confidence, and tells a story quite worth general attention.

ANNUAL OF SCIENTIFIC DISCOVERY; OR, YEAR BOOK OF FACTS ON SCIENCE AND ART FOR 1856, etc. By DAVID A. WELLS, A.M. Boston: Gould & Lincoln; New-York: G. P. Putnam. 378 pages, 12mo.

Mr. Wells has here given to the public another of his annual volumes describing the progress of science and the arts in the year past. The work is well executed, and, like another volume of his noticed in these pages, it does him much credit as a scientific editor.

NEW MUSIC.

WM. HALL & SON.—We have received the following among the choice pieces of music neatly published by this extensive house:

"Souvenir d'Ecosse, fantasie de Salon." Par W. Vincent Wallace. A remarkably brilliant and very effective composition.

"Forget me Not, a Romance for the Piano Forte." By W. Vincent Wallace. This is very beautiful and not very difficult.

"The Dreams of Youth." Ballad by W. J. Robson. Composed by J. W. Cherry. Simple and very pretty.

"When the Moon is brightly Shining." Sung by by Mr. Sims Reeves. Composed by B. Molique. A very pretty composition.

"Sleep Mine Eyelids Close." Ballad, words and music by Annie Fricker. Simple and pretty.

"I heard thy Fate without a Tear." Ballad by Lord Byron. Composed by J. W. Hobbs. A very pretty composition.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO FEB. 12.

John Beattie, of Liverpool, England, for improvement in means for supporting the propeller shaft, and receiving the rudder of stern propellers. Patented in England, Sept. 5, 1850.

Wm. H. Brown, of Worcester, for variable dia for dividing engines.

Jos. S. Brown, of Lowell, for improvement in extension railroad car.

Sam'l J. Chapman, of Charlestown, for machine for feeding sheets of paper to printing presses.

Jos. Cheever, of Boston, for improvement in apparatus for curing varicocele, sterility, impotency, and other diseases of the genital organs.

H. M. Clark, of New-Britain, Conn., for improvement in machines for heading bolts.

Hezekiah Crout, of Baltimore, for improvement in removable flank bar for securing the glasses of lanters.

Elisha H. Gollier, of Scituate, for improvement in heading spikes.

John P. Philo and Geo. Cowing, of Seneca Falls, N.Y., for improved method of operating fire-engine.

C. J. Cowperthwaite, of Philadelphia, for improved hydrant.

Charles A. Cumming and Cortland Douglass, of New-London, Conn., for improvement in gas burners.

Demit C. Cummings, of Fulton, N. Y., for improvement in lock gate valves.

Edw. A. Curley, of Westport, Conn., for improvement in extension tables.

Henry D. P. Cunningham, of Bury Hants, England, for improvement in reefing sails. Patented in England, Nov. 30, 1850.

Joseph C. Day, of Hackettstown, N. J., for improvement in fire-arms.

Allen Green, of Providence, for improved mode of attaching thills to axles.

W. W. Harvy, of Saltville., Va., for improvement in implements for pruning trees.

Caleb S. Hunt, of Bridgewater, Mass, for improvement in cotton press.

Frank G. Johnson, of Brooklyn, for improved method of regulating speed of windmills.

Richard W. Jones, of Green Castle, Ind., for improvement in brick machines.

A. Kendall, of Cleveland, for shingle machine.

Wm. F. Ketchum, of Buffalo, for improvement in grain and grass harvesters.

Sam'l M. King, of Lancaster, Pa., for shingle machine.

Wm. R. Lavender and Atkins Smith, of Provincetown, Mass., for improved steering wheel stopper.

J. A. Merriman, of Hindsdale, Mass., for mortising machine.

F. H. Moore, of Boston, for improvement in safety coal hole covers.

James McNabb and Adam Carr, of New-York, for improvement in steam stop-valves.

R. D. Nesmith, of Lake Village, N. H., for improvement in machines for dressing mill-stones.

Ephraim Parker, of Burlington, Iowa, for machine for making clothes pins.

Ira S. Parker, of Sharon, Vt., for improvement in washing boards.

Reed Peck, of Cortlandville, N. Y., for improvement in door-fastenings.

Charles Perley, of New-York, for improvement in cargo ports for ships and other vessels.

Abiel Pevey, of Lowell, Mass., for improvemen t in remelting iron scraps.

Ezra Ripley, of Troy, improvement in casting metals.

Samuel T. Sharp, of Danville, Mo., for improvement in straw cutter.

Thomas J. Stratton, of Waterloo, N. Y., for improvement in ditching machines.

Eber T. Starr, of New-York, for improvement in revolving fire-arms.

Francis M. Strong and Thomas Ross, of Vergennes, for improvement in platform scales.

Abner J. Sutherland, of Lowell, for improvement in yarn dressing frames.

James S. Taylor, of Danbury, for improvement in machinery for felting hats.

Joseph H. Tompkins, of Buffalo, for improved box for coating daguerreotype plates.

Lewis White, of Hartford, for improvement in curtain fixtures.

Hugh Wightman and Wm. Warden, of Alleghany, for improvement in oscillating engines.

Charles H. Brown and Chasles Burleigh, of Fitchburgh, Mass., assignors to the Putnam Machine Company, of same place, for improvement in means for regulating and working steam-valves as cut-offs.

John L. Brown, of Indianapolis, assignor to himself and Chas. Learned, of same place, for lath machine.

Gelston Sanford, and Thomas and Stephen Hull, of Poughkeepsie, for improvement in grain and grass harvesters.

David Marsh, of Bridgeport, assignor to Thomas B. Stout, of New-Jersey, Joseph A. Cody, of Ohio, and David Marsh, of Conn., for improvement in hanging mill-stones.

Ari and Asabel Davis, of Lowell, and Charles Cunningham, of Nashua, assignor to Alfred W. Adams, of Lowell, Josiah B. Richardson, and Geo. W. Pettes, of Boston, and Sherburne T. Sanborn, of Winchester, Mass., for improvement in hydrocarbon vapor apparatus.

Benj. F. Avery, of Louisville, Ky., for machin e for bending plow handles, &c.

J. A. Ayres, of Hartford, Conn., for method of opening and closing farm gates.

Thos. Crane, of Fort Atkinson, Wis., for improvement in flouring mills.

Wm. W. Hubbell, of Philadelphia, Pa., for improvement in eccentric explosive shells.

John M. Jones, of Palmyra, N. Y., assignor to Newton Foster, of same place, for improvement in cotton seed planters.

David H. Kennedy, of Reading, Pa., for improvement in the arrangement of tan vats.

Jos. W. Killam, of East Wilton, N. H., for machine for dressing sticks to polygnal forms.

Emmons Manley, of Marion, N. Y., for improved riveting machine.

Jos. S. Manning, of Philadelphia, Pa., for improvement in mowing machines.

Wm. H. Medcalfe, of Baltimore, Md., for method of ventilating railroad cars.

Jean Pierre Molliere, of Lyons, France, for improvement in machines for hammering leather for the soles and heels of boots and shoes. Patented in France, July 22, 1856.

John J. Osborn, of New-Orleans, La., for improvement in grate bars.

Francis Peabody, of Salem, Mass., for improved method of regulating velocity of wind wheels.

Freeman Plummer, of Manchester, Ind., for improvement in seed planters.

James P. Ross, of Lewisburg, Pa., for improvement in means for operating the steam valves in blower engines.

Chas. Schmidt, of Union, Mo., for improved method of boxing carriage wheels.

Horace Smith, of Norwich, Conn., and Daniel B. Wesson, of New-Haven, Conn., assignors to "The Volcanic Repeating Arms Company," of New-Haven, Conn., for improved primes for cartridges of fire-arms.

John H. Manny, of Rockford, Ill., for improvement in grain and grass harvesters.

John H. Manny, of Rockford, Ill., for improvement in harvester cutter bars.

Adolph C. Moestue, of Kane County, Ill., for improvement in mastic for covering walls.

Lucius Page, of Cavendish, Vt., for improvement in grinding mills.

Jos. N. Pitts, of Blackstone, Mass., for improvement in machines for cutting flocks and paper stock.

Rufus Porter, of Washington, D. C., for improved punching machines.

Geo. M. Ramsay, of New-York, N. Y., for improved hinge.

H. G. Robertson, of Greenville, Tenn., for improvement in bee hives.

Riley Root & Samuel G. Holyoke, of Galesburg, Ill., for improvement in machines for clearing snow from railroad tracks.

Henry F. Shaw, of South Boston, Mass., for improvement in screw-jacks.

Charles F. Thomas, of Taunton, Mass., for improved chimney cowls.

Philos B. Tyler, of Springfield, Mass., for improved method of attaching teeth to saw plates.

Elbridge Webber, of Gardiner, Me., for improved device in tree-nail machines.

Thos. Winans, of Baltimore, Md., for improvement in buggy wagons.

Geo. D. Yong, of Plymouth, Mass., for improvement in belt and band fastenings.

Daniel Dod, of Brooklyn, N. Y., assignor to himself and Henry F. Read, of same place, for improved soldering iron.

Horace L. Houghton, of Springfield, Vt., assignor to Abel H. Grennell, of same place, for improvement in machines for cutting mouldings on marble.

Edward Kershaw, of Boston, Mass., assignor to himself and Henry M. Hooper & Co., of same place, for improved cell lock.

Jos. Weis, of Bordentown, N. J., for improvement in flouring mills.

Albert Bisbee, of Chelsea, Mass., for improvement in means for operating the throttle valve of steam engines.

Jos. T. Capewell, of Woodbury, Conn., for improvement in shot pouches.

Thomas J. Carleton and Stephen Post, of York, O., for improved field fences.

Geo. R. Comstock, of Manheim, N. Y., for improvment in locomotive furnace grates.

Henry N. Degraw, of Piermont, N. Y., for improvement in machine replacing railroad cars.

Louis T. Delassize, of New-Orleans, La., for improvement in brick machines.

Chas. Foster, of Philadelphia, Pa., for improvement in scaffolds.

Moses G. Farmer, of Salem, Mass., for improvement in telegraphic Registers.

Stephen J. Gold, of New-Haven, Conn., for improvement in apparatus for heating buildings by steam.

John Hinkley, of Huron, O., for improvement in universal joints for connecting shafts, &c.

Hazzard Knowles, of New-York, N. Y., for mortising tool.

Noah W. Kumber, of Cincinnati, O., for improvement in pill-making machines.

Charles H. Bush, of Fall River, Mass., for improvement in the bell stench trap.

Solomon Berheisel, of Tyrone Township, Pa., for improvement in corn dryers.

Wm. Ball, of Chicopee, Mass., for improved ore washer.

A. H. Caryl, of Sandusky, Ohio, for improved raking attachments to harvesters.

Levi Chapman, of New-York, N. Y., for improved photographic plate vise.

John Cook, of Westmoreland, N. Y., for improvement in lugs for cast iron shingles.

Edward N. Dickerson, of New-York, N. Y., and Elisha K. Root, of Hartford, Ct., for improvement in pumps.

Peter S. Elbert, of Chicago, Ill., for improvement in heating-feed-water apparatus for locomotives.

John G. Ernst, of York, Pa., for improved saw set.

Major H. Fisher, of Sing Sing, N. Y., assignor to Jos. A. Hyds, of Bridgewater, Mass., for improvement in cutting files.

Elisha S. French, of Binghamton, N. Y., for improvement in three-wheeled vehicles.

Thomas Frith, of Cincinnati, O., for improved feed-water apparatus to steam boilers.

Samuel Gissinger, of Alleghany, Pa., for improved bench vise.

Elisha Harris, of Providence, R. I., for improvement in machines for bending ship hooks.

Oliver S. Hazard and Isaac Peck, of Coventry, R. I., for improvement in machinery for making rope.

Harvy J. Hughes, of Davenport, Iowa, for improvement in brick presses.

Samuel McFerran, of Philadelphia, Pa., for improvement in hot-air furnaces.

Richard Montgomery, of New-York, N. Y., for improvement in carriage springs.

S. S. Mills & M. Bissell, of Charleston, S. C., for improvement in weighing scales.

Stephen C. Mendenhall, of Richmond, Ind., for improvement in flour bolts.

Geo. R. Moore, of Mount Joy, Pa., for improvement in fire-pokers.

Francis Morandt, of Boston, Mass., for improvement in lanterns.

Sam'l Peck, of New-Haven, Conn., for improved fastenings for the hinges of daguerreotype cases.

Myer Phineas, of New-York, N. Y., for improved metallic pen.

Juan Pattison, of Brooklyn, N. Y., for improvement in oscillating steam engines.

B. F. Ray, of Baltimore, Md., for improvement in harvesters.

John S. Snyder, of Lancaster, O., for improvement in saw mills.

Alfred Swingle, of Boston, Mass., assigner to Elmer Towsend, of same place, for improvement in sewing machines.

Harriet V. Terry, of Boston, Mass., administa trix, of Wm. D Terry, dec'd, for improved mode of constructing cast iron buildings.

S. J. Frask, of Guilford Centre, N. Y., for improved alarm clock.

Otis Tufts, of Boston, Mass., for improvement in making wrought iron shafts.

John B. Wentworth, of Lynn, Mass., for improvement in machines for softening leather.

Abner Whitly, of Springfield, O., for improvement in grain and grass harvesters.

Abner Whitly, of Springfield, O., for improvement in belt fastenings.

John Standing, of Fall River, Mass., assignor to himself and James Baxendale, of Providence, R. I., for improved movement for the doctors of calico printing machines.

Chas. C. Terrell, of Shullsburgh, Wis., assignor nor to himself and Samuel Crawford, of Mineral Point, Wis., for improvement in many-chambered breech loading cannon.

John M. Wimley, of Philadelphia, Pa., assignor to himself and Washington H. Penrose, of same place, for improvement in the mode of attaching composition soles to boots and shoes.

Wm. Adamson, of Philadelphia County, Pa., for improvement in machinery for cutting sand paper. Ante-dated Aug. 12, 1855.

John Allender, of New-London, Conn., for improvement in scissors.

B. J. Barber, of Ballston Spa, N. Y., for improved method of tonguing and grooving tapering boards.

Wm. Baxter, of Newark, N. J., for improved wrench.

Erastus B Bigelow, of Boston Mass., for improvement in power looms.

Felix Brown and Adolph Brown, of New-York, N. Y., machine for boring and tenoning wood.

John Clark, of Washington, D. C., and G. W. N. Yost, of Pittsburg, Pa., for improvement in ploughs.

Chas. W. Copeland, of New-York, N. Y., for improvement in valve and exhaust passages of steam engines.

Waldo P. Craig and Wm. R. Rightor, of Newport, Ky., for improvement in signals for vessels.

Clement Dare, of Cincinnati, Ohio, for improved method of regulating feed gates for mills, etc.

C. H. Denison, of Green River, Vt., for rotary planer for felloes.

Levi S. Enos, of Olean, N. Y., for improvement in oil cans.

Wm. E. Everett and M. M. Thompson, of New-York, N. Y., for improvement in devices for removing incrustations of boilers.

David N. Flanders, of South Royalton, Vt., for improved adjustable carriage seat.

P. G. Gardiner, of New-York, N. Y., for improvement in railroad car-axle.

John S. Gallaher, jr., of Washington, D. C., for improvement in gas and steam cooking apparatus.

Thaddeus Fowler, of Waterbury, Conn., for improvement in sticking pins in paper.

Robt. & Wm. L. Gebby, of New-Richland, O., for improvement in seed planters.

Wm. Gee, of New-York, N. Y., for lubricator.

Ejijah Hall, of Rochester, N. Y., for improvement in power looms.

Anson Hatch, of Forestville, Conn., for improved hand press for stamping letters, &c.

Birdsill Holly, of Seneca Falls, N. Y., for improvement in steam engines, which are used for pumping.

J. L. Horn, of Edgecombe County, N. C., for improvement in cotton seed planters.

Westel W. Hurlbut, of Utica, N. Y., for improved method of hanging and adjusting circular saws.

Solon S. Jackman, of Lock Haven, Pa., for improved elevator for puddlers balls.

Ferdinand Keehnold, of Bridgeport, Conn., for improved wrench.

James T. King, of New-York, N. Y., for improvement in steam condensers.

R. W. Lewis, of Honesdale, Pa., for improvement in sealing preserve cans.

Edward Lindner and Conrad Hoffman, of New-York, N. Y., for improvement in porte-monnaies.

John L. McPherson, of New-Vienna, O., and Jacob O. Joyce, of Cincinnati, O., for improvement in diaphragm pumps.

Christopher Moeller, of Newark, N. J., for improvement in wick holders for Argand lamps.

Eljsha P. Newton, of Green Island, N. Y., for improved wrench.

Job Phillips, of Harrisburgh, Pa., for improvement in grain harvesters.

John Prime, of Washington, D. C., for improvement in ship compasses.

Lea Pusy, of Philadelphia, Pa., for improved method of extinguishing fires.

Wm. H. Robertson and George W. Simpson, of Hartford Conn., for improvement in breech-loading fire-arms.

Chas. H. Sayre, and George Klinch, of Utica, N. Y., for improvement in cultivator teeth.

John Seithen, of Coblenz, Prussia, for improved envelopes for bottles. Patented in England, August 29, 1854.

Edwin F. Schoenberger, of Marietta, Pa., for improvement in fluxing blast furnaces.

Timothy F. Taft, of Fitchburg, Mass., for improved bolt machine.

Benj. Taylor, of Philadelphia, Pa., for instrument for grating green corn.

Thos. Thompson, of Nickersville, N. Y., for improved machine for folding paper, &c.

Wm. D. Titus, of Brooklyn, N. Y., for improvement in oil box for axles with conical journals.

Wm. H. Powers, of Philadelphia, Pa., for improvement in clothes clamps.

Loison D. Towne, of Worcester, Mass., for cutter heads for planing machines.

James Whitcom, of Detroit, Mich., for improvement in railroad switch.

S. W. Wood, of Washington, D. C., for improvement in railroad car coupling.

Geo. W. N. Yost, of Pittsburgh, Pa., for improvement in grain and grass harvesters.

C. C. Hoff, of Albany, N. Y., assignor to E. P. Russell, of Manlius, N. Y., for improvement in the construction of mastic roofing.

James M. Kern, of Morgantown, Va., assignor to Enoch P. Fitch and Isaac Scott, of same place, for improved method of concaving circular saws.

Alfred Swingle, of Boston, Mass., assignor to Elmer Townsend, of same place, for improvement in pegging boots.

Chas. Morgan, of Philadelphia, Pa., assignor to Sam'l Emlen, of same place, for improvement in potato planters.

Henry Newsham, of Baltimore, Md., for improvement in caldrons.